



*IBM WebSphere Business
Modeler V6.2: Process
Mapping and Analysis*

(Course code WB284 / VB284)

Student Notebook

ERC 1.0

Authorized



Training

WebSphere Education

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Course description

IBM WebSphere Business Modeler V6.2: Process Mapping and Analysis

Duration: 3 days

Purpose

This three-day instructor-led course teaches students how to use business process management (BPM) practices while using the powerful features and capabilities of IBM WebSphere Business Modeler V6.2.

WebSphere Business Modeler can be used to create a comprehensive view of the processes that underlie how companies do business. WebSphere Business Modeler, along with business process analysis methods, can support process improvement by giving organizations an understanding of how their processes work.

In this course,

Audience

This course is designed for:

- Business analysts
- Implementation consultants
- Project managers
- Support engineers
- Sales and marketing professionals
- Customers who need intensive training in process modeling, analysis, simulation, and reporting using WebSphere Business Modeler V6.2

Prerequisites

There are no required prerequisites for this course.

Objectives

After completing this course, you should be able to:

- Create a business process diagram using the process editor
- Create definitions and structures for modeling elements

- Link requirements with Rational RequisitePro
- Validate a model and perform static analysis
- Identify project management capabilities and methodologies
- Create a process model based on a business scenario
- Perform team collaboration support for version control
- Perform team collaboration using WebSphere Business Modeler Publishing Server
- Import Visio diagrams to WebSphere Business Modeler

Agenda

Day 1

Course introduction
Unit 1. Introduction to business process management and WebSphere Business Modeler
Unit 2. WebSphere Business Modeler overview
Exercise 2. Creating a simple process
Unit 3. Creating a business process diagram
Exercise 3. Adding definitions and structures
Unit 4. Defining elements and attributes
Exercise 4. Defining elements and attributes

Day 2

Unit 5. Completing the process model
Exercise 5. Completing the process model
Unit 6. Defining human tasks and forms
Exercise 6. Defining human tasks and forms
Unit 7. Defining business rule tasks
Exercise 7. Defining business rule tasks
Unit 8. Linking requirements to Rational RequisitePro
Exercise 8. Linking requirements to Rational RequisitePro
Unit 9. Model validation and static analysis
Exercise 9. Model validation and static analysis

Day 3

Unit 10. Basic reports and queries
Exercise 10. Basic reports and queries
Unit 11. Project management, methodology, and approaches
Exercise 11. Solution modeling
Unit 12. Collaboration support for version control
Exercise 12. Collaboration support for version control
Unit 13. WebSphere Business Modeler Publishing Server overview
Exercise 13. Collaboration using WebSphere Business Modeler Publishing Server
Unit 14. Importing Microsoft Visio and existing model data
Exercise 14. Importing from Microsoft Visio
Unit 15. Course review
Unit 16. Course summary

Unit 1. Introduction to business process management and WebSphere Business Modeler

What this unit is about

This unit introduces the business process management and WebSphere Business Modeler.

What you should be able to do

After completing this unit, you should be able to:

- Explain business process management (BPM)
- Describe how service-oriented architecture (SOA) supports process improvement
- Explain which IBM products support SOA
- Describe the primary capabilities of WebSphere Business Modeler
- Explain the importance of modeling business processes
- Explain the purpose of process simulation and analysis
- Describe how to create solutions using the WebSphere Toolset by merging business needs with IT capabilities

How you will check your progress:

- Checkpoint

References

None

Unit objectives

After completing this unit, you should be able to:

- Explain business process management (BPM)
- Describe how service-oriented architecture (SOA) supports process improvement
- Explain which IBM products support SOA
- Describe the primary capabilities of WebSphere Business Modeler
- Explain the importance of modeling business processes
- Explain the purpose of process simulation and analysis
- Describe how to create solutions using the WebSphere Toolset by merging business needs with IT capabilities

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Figure 1-1. Unit objectives

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Notes:

CEOs want technology to support business goals

CEO needs	CIO challenges
Revenue growth with cost containment	Aligning IT and business goals to grow revenue and contain costs
Responsiveness to business conditions and ability to pursue new market opportunities	Building responsiveness and agility into the organization through IT
Improving internal skills, capabilities, and leadership as a first step toward growth	Enabling people and teams to be more effective through IT

Source: *Your Turn: The Global CEO Study*, IBM Corp.

Source: *Operating Environment Market Drivers Study*, IBM Corp.

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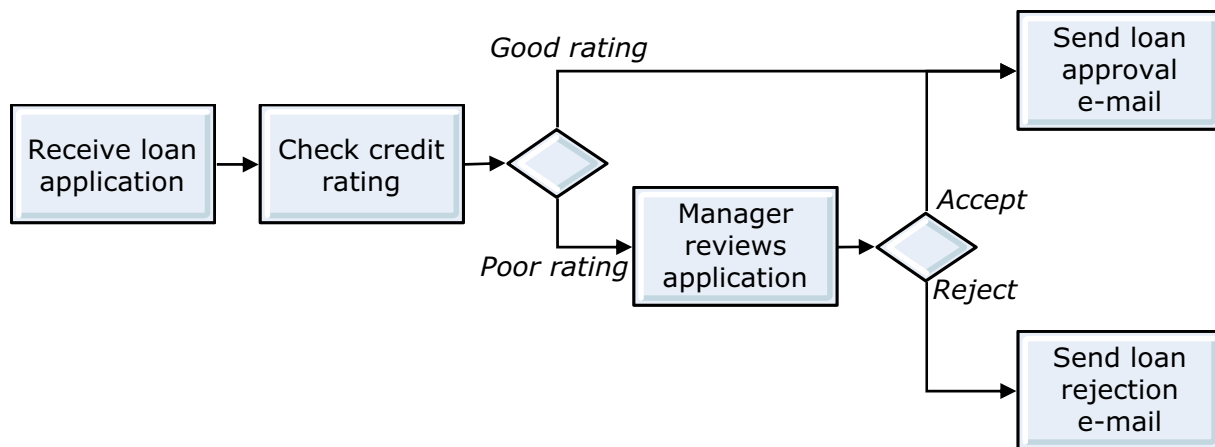
Figure 1-2. CEOs want technology to support business goals

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Notes:

Business processes support business goals

- A business process is a set of linked activities that create value by transforming an input into a more valuable output.
 - Both input and output can be artifacts or information, or both
 - The transformation can be performed by human actors, machines, or both.
- Example:



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Figure 1-3. Business processes support business goals

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Notes:

A business process is a collection of interrelated tasks, which solve a particular issue.

Business process management (BPM)

- Refers to activities performed by organizations to manage and improve their business processes
- Describes activities and events which are performed to optimize a business process
- Uses systematic approach to improve business processes for organizations
- Aims to make business processes more effective, more efficient, and more capable of adapting to a rapid changing environment

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Figure 1-4. Business process management (BPM)

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Notes:

BPM differs from business process re-engineering, a management approach popular in the 1990s, in that it does not aim at on-off revolutionary changes to business processes, but at their continuous evolution.

Business process management (BPM) governs an organization's cross-functional, core business processes. It achieves strategic business objectives by directing the deployment of resources from across the organization into efficient processes that create customer value. This focus on driving overall bottom line success differentiates BPM from traditional functional management disciplines.

In addition, intrinsic to BPM is the principle of continuous improvement, perpetually increasing value generation and sustaining market competitiveness (or dominance) of the organization.

Related process improvement methods

- Business activity monitoring:
 - This refers to the aggregation, analysis, and presentation of real-time information about activities inside organizations and activities involving customers and partners
- Six Sigma:
 - A business improvement methodology, originally developed by Motorola to systematically improve processes by eliminating defects
- Lean Enterprise:
 - A management philosophy focusing on reduction of the seven wastes to improve overall customer value:
 - Transportation, inventory, motion, waiting time, overproduction, processing, defective products (scrap in manufactured products)
- Lean Six Sigma:
 - Combines Lean Enterprise's focus on speed with Six Sigma's focus on quality
 - The result is better quality, faster

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Figure 1-5. Related process improvement methods

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Notes:

This is a list of additional BPM terminology being used in the industry.

Tools and technologies for process improvement

- Software tools and technologies (such as WebSphere Business Modeler) are used in business process improvement efforts to:
 - Model processes
 - Simulate processes
 - Define requirements
 - Create workflow systems
 - Develop integration applications
 - Monitor processes
 - Identification of reusable business services
- Service-oriented architecture (SOA) is a driving technology behind the increased interest in process improvement.

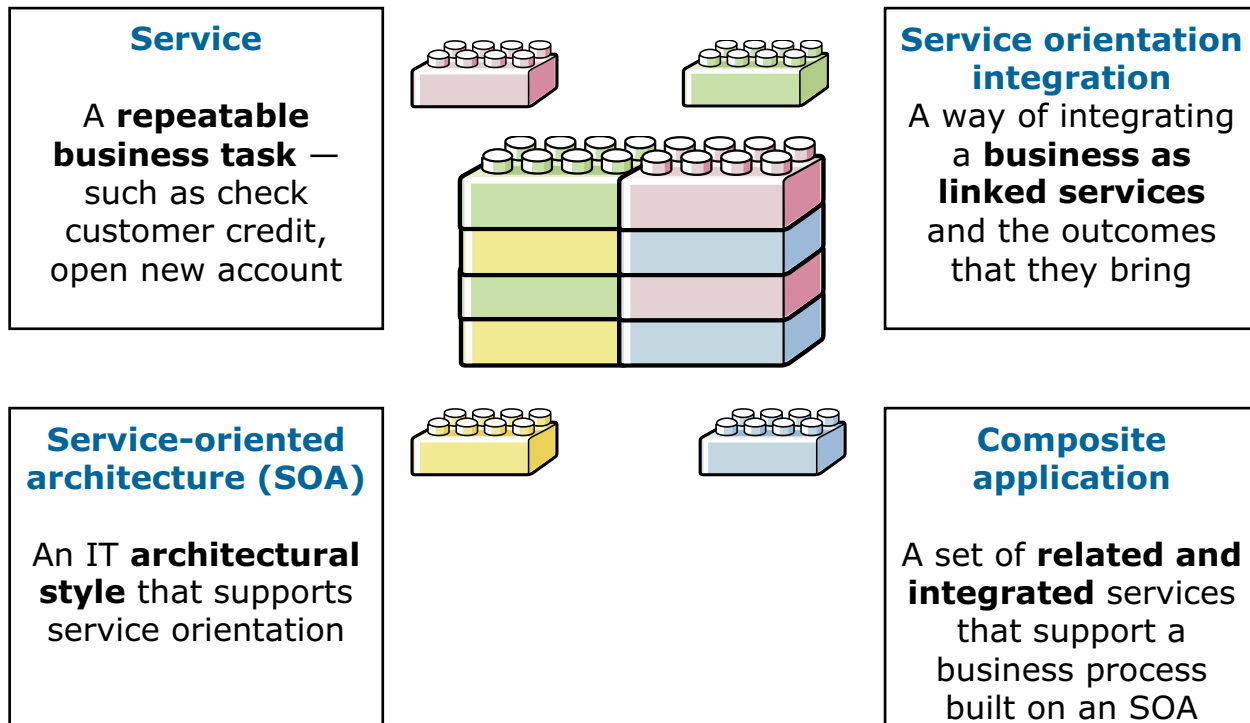
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Figure 1-6. Tools and technologies for process improvement

WB284 / VB2841.0

Notes:

Services and service-oriented architecture defined



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Figure 1-7. Services and service-oriented architecture defined

WB284 / VB2841.0

Notes:

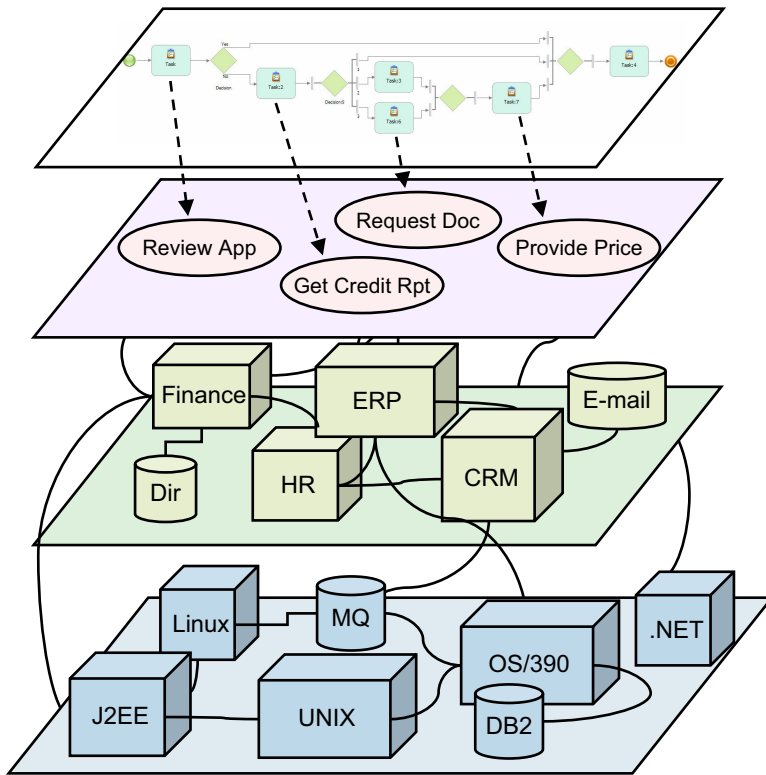
You will start by looking at some base-line definitions so that everyone is talking in the same terms.

- First of all, what is a service?
It is important to stress that you are talking about a part of a business process here. Do not think about software or IT. Think about what your company does on a day-to-day basis and break those business processes up into repeatable business tasks or components.
- Second, what is service orientation?
Building on your definition of a service, service orientation is a way of integrating your business as linked services and, more importantly, the outcomes that they bring. You are still not talking about technology; you are talking about a thought process and a business philosophy.
- What is SOA?
It is quite simply the IT architectural style that supports the service orientation thought process and makes it a reality.

- And finally, what is a composite application?

It consists of actual running services that have been assembled and wired together to support what your business does. SOA helps make building and adjusting composite applications fast and easy.

The process drives development through the use of business services



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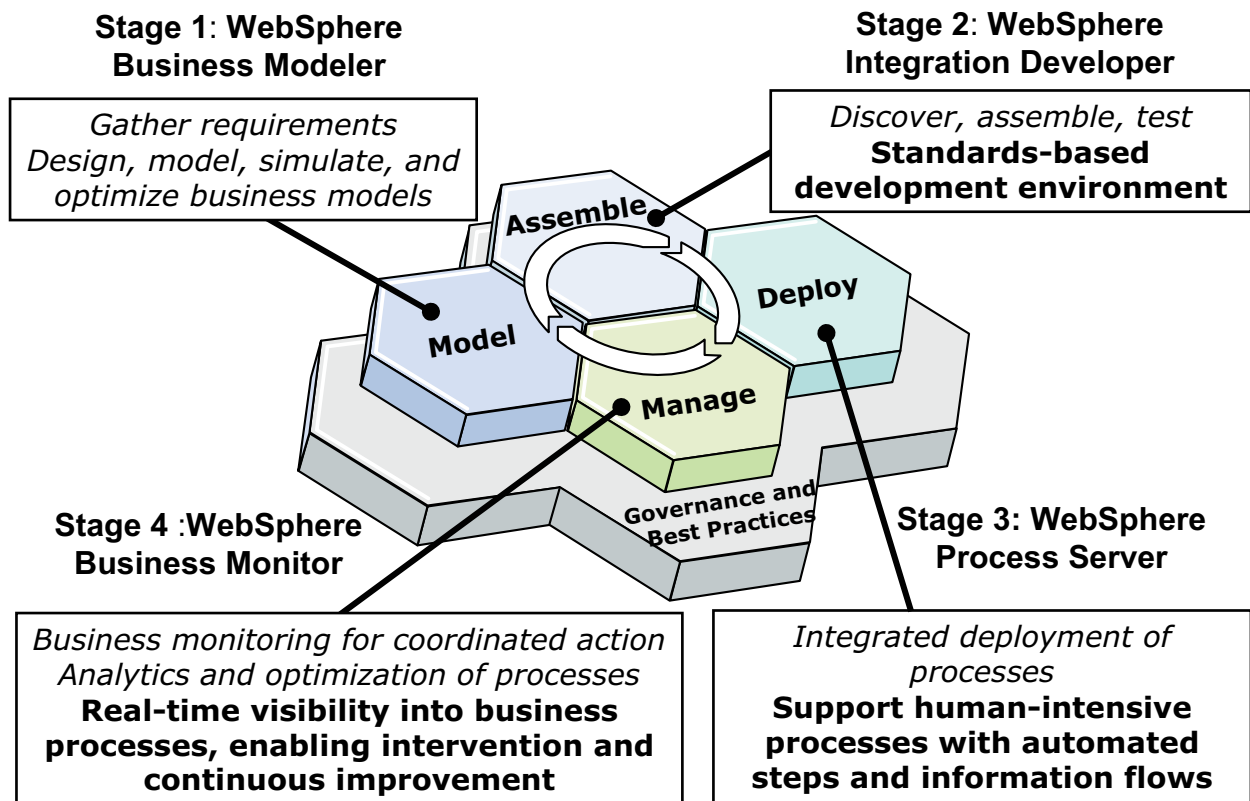
Figure 1-8. The process drives development through the use of business services

WB284 / VB2841.0

Notes:

- **Business process layer**
 - Cross functional end-to-end loan process
 - Manual tasks
 - Human tasks
 - Business rules tasks
 - Service calling tasks
- **Service layer**
 - Business Services
 - Dynamic Selection Services
- **Application layer**
 - Applications, components, software
- **Technology layer**
 - Hardware, network
 - Connect J2EE to .NET

IBM products support each stage of the SOA life cycle



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Figure 1-9. IBM products support each stage of the SOA life cycle

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Notes:

Start in the model phase by gathering business requirements and designing business processes. Optimize the business processes by combining new and existing services. The assets are then deployed into a secure and integrated environment for integrating people, processes, and information. Once deployed, manage and monitor from both an IT and a business perspective. Information gathered during the manage phase is fed back for continuous process improvement. Underpinning all of these life cycle stages is governance which provides guidance and oversight for the SOA project, financial transparency, and alignment of business goals and IT.

IBM delivers end-to-end business process management capabilities that support each stage of the business process life cycle.

Starting with stage 1 -- WebSphere Business Modeler:

This Model phase is for gathering business requirements, designing, simulating, and optimizing desired business processes. That way, they are sure about setting the right steps in motion before further action is taken.

Moving to stage 2 -- WebSphere Integration Developer:

Once they have optimized the business process, they implement it by combining newly created and reused existing services to form composite applications.

In the Deploy stage, stage 3 -- WebSphere Process Server:

WebSphere Process Server, for flexible deployment of business processes, makes plug-and-play components a reality.

The assets are then deployed into a secure and integrated environment taking advantage of specialized services that provide support for integrating people, processes and information. This level of integration helps ensure that all the key elements of your company are connected and working together.

Finally, in the manage stage, stage 4 -- WebSphere Business Monitor:

WebSphere Business Monitor real-time visibility into process performance enables process intervention and continuous improvement.

Once deployed, customers manage and monitor the composite applications and underlying resources from both an IT and a business perspective. Information gathered during the manage phase is used to gain real-time insight into business processes, enabling better business decisions and feeding information back into the life cycle for continuous process improvement.

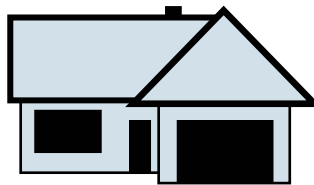
Underpinning all of these life cycle stages is governance and best practices, which provide guidance and oversight for the SOA project.

When do you use a model?

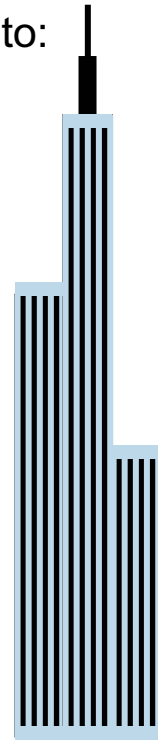
- Modeling is the standard approach in engineering to:
 - Manage complexity
 - Mitigate risk
- Software development is the same as every kind of engineering in this respect
- When do you model and why?



Dog house
Not required



For documentation
(blueprint)



For documentation
and analysis

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Figure 1-10. When do you use a model?

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Notes:

Modeling helps manage complexity and risk.

- Not all projects require models in order to be successful.
- The more complex a project, the more it needs models.
- Software is no different from every other kind of engineering, in this respect.

Models support design

- Simple things do not necessarily need a model.
 - The solution is relatively easy to construct
 - Few people collaborate or use the solution (often only one)
 - The scope of future needs is unlikely to grow substantially
 - What if none of these characteristics apply?
- Certain complex systems must begin with a design or another abstract representation.
 - Construction of an office building needs architectural plans and a mock-up for visualization
 - What if the original architects are not completing the task?
- Modeling provides visualization of the entire system.
 - Allows assessment of various options
 - Communicates design risks before actual construction

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Figure 1-11. Models support design

WB284 / VB2841.0

Notes:

The degree of complexity and cost determine the need for models. The more complex and expensive a system, the greater the need for understanding the possible outcomes before beginning the development. It is important to determine if the new system will provide the function or improvement before any development dollars are spent.

Models are the foundation for complex analysis

- A model serves as an abstraction of the item being built.
- Business analysts, engineers, scientists, and other professionals who build complex structures or systems create models.
 - Sometimes the models are physical
 - Scaled mock-ups of airplanes, houses, or autos
 - Sometimes the models are less tangible
 - Financial models, market trading simulations, electrical circuit diagrams
- Traditional flow charts are a common method for representing the paths of a process.
 - Structure charts, or simple block diagrams with arrows, are often used on whiteboards.

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Figure 1-12. Models are the foundation for complex analysis

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Notes:

This puts a great deal of import on the model of the process -- not on simply mapping a process.

- Discuss the difference in modeling and mapping as you use the terms
- Models help people understand complex systems for discussion and analysis. You can also use tools like simulation to test new ideas on models before you spend development dollars
- There are also many different types of models that are interrelated with different purposes (documentation, analysis, development, performance).

Today's business processes require modeling

- One-dimensional flow charts or models miss key attributes
 - Business processes have a flow of work elements and more
- Organizational and business information are key attributes
 - How long does it take?
 - How much does it cost?
 - Who provides the service?
 - What policies, procedures, and business rules apply?
 - When is the process efficiency optimized?
- Process models document the business and assist in communicating organizational change to the enterprise
 - Once documented and shared with the organization, the process needs to be monitored and updated to provide optimal performance
 - Corporate governance: Implementing controls to help ensure legal compliance with the Sarbanes-Oxley Act for accurate financial forecasting and reporting

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Figure 1-13. Today's business processes require modeling

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Notes:

Managing change requires a solid understanding of what you do and the interrelationships of the various elements of the enterprise. The questions are no longer about the technology but about the effect on the business itself.

Purposes of business process modeling

- Business process models serve many purposes, including:
 - Documenting existing procedures
 - Determining requirements for staff, systems, and facilities
 - Planning changes to existing processes and systems
 - Testing and analyzing existing and proposed processes
 - Identifying defects in your processes (bottlenecks, and so forth)
 - Process model data can support other business applications that rely on this information:
 - Workflow, policy and procedure documentation, application development
- Models visually represent an organization's current workflow (an as-is model) and allow what-if scenarios for future (to-be) designs.
- Effective models need a well designed modeling structure.
 - To understand what it takes to complete the activities
 - Ensures consistent and complete representation of information
 - Including normal operations, alternatives, and exceptions to standards

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Figure 1-14. Purposes of business process modeling

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Notes:

Why is the process layer important? It provides for communication among all parties, fir both business and technology, a solid foundation for the future responsiveness of the enterprise to change. Today's software systems are no longer simple like the dog house; they are more complicated like the skyscraper. It is very difficult to understand them without a model. They are also very expensive to implement; therefore it is important to understand the outcome before you start to build them.

Business process modeling begins with understanding the current environment

- Both BPM and SOA start with an understanding of the current business environment.
- The focus of this course is using business process analysis to create accurate process models of the current business environment.
- IBM WebSphere Business Modeler is used to document and analyze the current as well as the future business process models.
- WebSphere Business Modeler also supports the follow-on stages:
 - Generates code to execute the business processes
 - Creates the business measures to monitor the executing processes
 - Imports execution results to update the current model for analysis

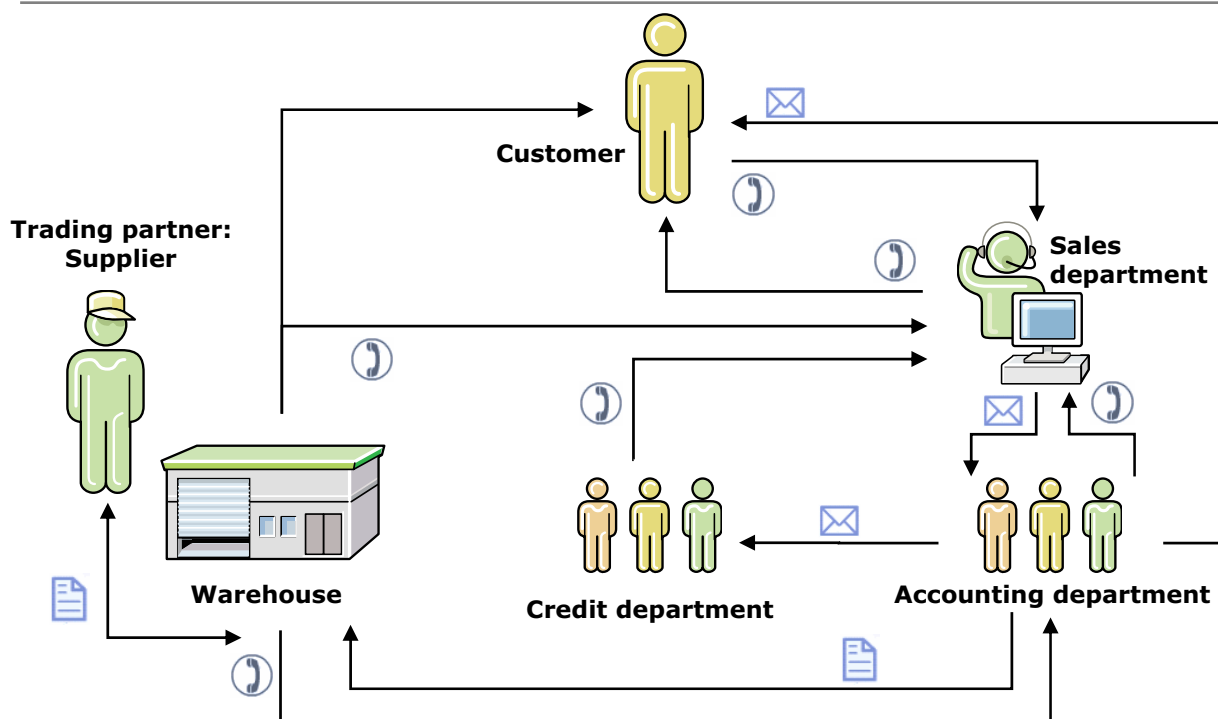
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Figure 1-15. Business process modeling begins with understanding the current environment

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Notes:

A complete business process



A complete business process includes all the manual and automated activities.

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Figure 1-16. A complete business process

WB284 / VB2841.0

Notes:

A complete business process includes all the manual and automated activities. During the process, there are many different entities involved.

Purpose of WebSphere Business Modeler

- WebSphere Business Modeler is the first product in the SOA life cycle.
- WebSphere Business Modeler is used to:
 - Document and analyze the performance of current processes
 - Gather process-related business requirements
 - Model resources, roles, organization, information, and business metrics
 - Simulate the modeled business processes based on modeled and actual data
 - Identify problem areas in a process
 - Facilitate team and user discussions
 - Design and evaluate new business processes
 - Make informed decisions before deployment
 - Add technology-dependent configuration parameters
 - Generate code for Web-based workflow systems
 - Receive process-related results from production

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Figure 1-17. Purpose of WebSphere Business Modeler

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Notes:

Modeler is not only a tool for process analysis, but also a documentation tool.

Capabilities of WebSphere Business Modeler

- WebSphere Business Modeler capabilities are central to the understanding of the business process model.
 - **Modeling** allows you to create a graphic diagram or a business process plus all the related process information.
 - **Simulation** supports the time and cost analysis of a process under real-time conditions.
 - **Analysis** provides a number of tools to extract details from the model and from simulation results.
 - **Reporting** creates several documents that can be used to communicate the results of process documentation and analysis.
 - **Code generation** generates code that can be used as a starting point for process automation.

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Figure 1-18. Capabilities of WebSphere Business Modeler

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Notes:

WebSphere Business Modeler has many different capabilities depending on the purpose or objectives.

Modeler's multidimensional business model (1 of 2)

- WebSphere Business Modeler uses several different models to represent the different aspects of a business process. Together, the different models provide a complete representation of the business process.
- **Process model:** Work being performed
 - Provides a pictorial representation of the process model
- **Data model:** Information used in the work
 - Provides a view of data and objects used in a business process
- **Resource model:** Who performs the work
 - Defines the resource types and instances associated to the model
- **Organization model:** How process participants are organized
 - Definition and structure of the organization and associated resources

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Figure 1-19. Modeler's multidimensional business model (1 of 2)

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Notes:

WebSphere Business Modeler uses several different models to represent the different aspects of a business process. Working together the different models provide a complete representation of the business process.

Modeler's multidimensional business model (2 of 2)

- WebSphere Business Modeler uses additional models for other process modeling related work.
- **Analysis model:** What is analyzed
 - Definition of key process metrics and attributes analyzed in both a static and dynamic manner
- **Collaboration model:** How analysts share work
 - Allows for model and deployment collaboration on process models
- **Business measures model:** What is to be monitored
 - Definition of key performance indicators (KPIs) and metrics to measure system and process performance triggers

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Figure 1-20. Modeler's multidimensional business model (2 of 2)

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Notes:

Unlike one big drawing of a business process, the modeler uses several different models to represent the different aspects of a business process. Working together the different models provide a complete representation of the business process.

Process model development

- Business and engineering analysts create current models (“as-is”)
- They analyze what works and what needs improvement
 - Use WebSphere Business Modeler to simulate these models based on key variables, such as time, costs, and resources
- Current models are redesigned (“to-be”)
 - “Future” models serve as key drivers for development
 - “Future” models can be specified to such rigor that complete applications can be generated from the models
- Process models are exported to WebSphere Integration Developer for process choreography or to Rational Software Architect for code development when required

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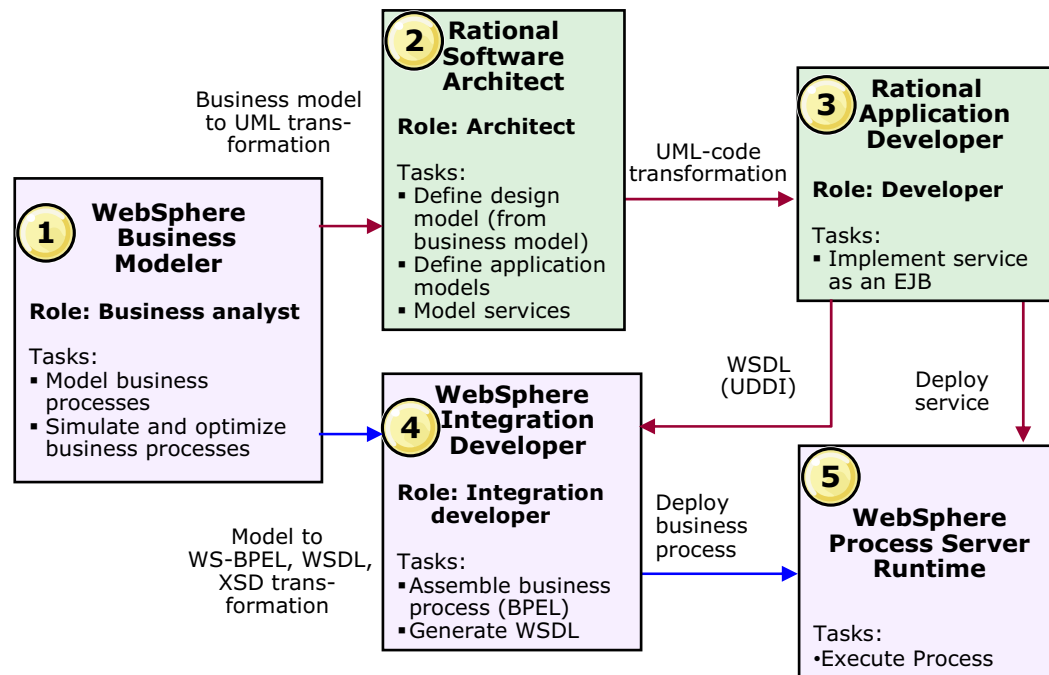
Figure 1-21. Process model development

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Notes:

The process model now becomes the common communication vehicle between the business and IT. Also, the model that is used to describe the business can be used in the development cycle.

Workflow development starts with a process model



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Figure 1-22. Workflow development starts with a process model

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Notes:

This diagram represents a typical development process that can take two paths.

Path one (if new services need to be developed):

1. Using WebSphere Business Modeler, a business analyst models, simulates and analyzes a business process.
2. When the process is ready for development, the model can be ported to Rational Software Architect to build the design model and services models needed by the application.
3. From the Rational Software Architect models, the actual code and services (EJBs) are developed in Rational Application Developer.
4. Code is exported to WebSphere Integration Developer where the process is choreographed in BPEL (Business Process Execution Language) using services developed in Rational Application Developer.
5. Once developed, the code is deployed to the WebSphere Process Server runtime environment.

Path two (If the services are developed and ready for execution):

1. From WebSphere Business Modeler, the process model is exported to WebSphere Integration Developer.
4. In Integration Developer, the process is choreographed in BPEL (Business Process Execution Language) and the application is assembled using services developed in Rational Application Developer.
2. The application created in Integration Developer is packaged and deployed to the WebSphere Process Server runtime environment.

WebSphere Business Modeler product offerings

- Modeler editions provide different capabilities based on needs

WebSphere Business Modeler Basic	WebSphere Business Modeler Advanced	WebSphere Business Modeler Publishing Edition
<ul style="list-style-type: none"> ▪ Process modeling ▪ Eclipse integration ▪ Supports Six Sigma ▪ Version control 	<ul style="list-style-type: none"> ▪ Process modeling ▪ Performance simulation ▪ Business analysis ▪ Rational integration ▪ WSPEL support ▪ Support for WebSphere Business Monitor 	<ul style="list-style-type: none"> ▪ Publish process models to Web ▪ Feedback capabilities ▪ Publishing Server consists of Business Space and DB2
<ul style="list-style-type: none"> • Provides a low-cost option for business users who need a simple, easy-to-use tool to model, document, and print their business processes 	<ul style="list-style-type: none"> • Basic features plus complex model simulation and analysis capabilities • IT-focused users can export models to multiple development environments to "jump-start" application development 	<ul style="list-style-type: none"> • Advanced features plus the ability to publish business process models to a portlet-based server • Subject matter experts can examine and review models simultaneously through a Web browser

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Figure 1-23. WebSphere Business Modeler product offerings

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Notes:

WebSphere Business Modeler has three primary editions, each with a specific purpose. The **Basic Edition** is for those companies with several modelers that need to document the business processes without the need to do the analysis. The **Advanced Edition** adds the capability to perform process analysis for those analysts with more responsibilities. The **Publishing Edition** is a package that includes one copy of WebSphere Business Modeler Publishing Server, and multiple licenses of WebSphere Business Modeler Advanced.

WebSphere Business Modeler Advanced bridges the gap between line of business and IT. It provides robust functionality for process modeling, enterprise modeling, essential data and artifact modeling, organization modeling, resource modeling, timeline and location modeling, and business process analysis.

With WebSphere Business Modeler Advanced, business and IT communities utilize an Eclipse-based shared workspace. Business analysis is key to improving your business. Many business process modeling efforts stop at developing flow diagrams or process maps. With WebSphere Business Modeler Advanced, the effort is extended to include

simulation, analysis, and redesign.

WebSphere Business Modeler Basic is a low-cost entry edition providing basic modeling to capture data. The Basic Edition is for enterprise departments and individual users not requiring the full capabilities of WebSphere Business Modeler Advanced. WebSphere Business Modeler Basic is used for modeling, validation, and documentation. Once the models are entered, the validation rules still apply; however, the Advanced Edition is needed to utilize the simulation engine and analysis. The reporting tool and the complete set of static documentation reports are available in this base release. The models can be captured, validated, and documented in this version. WebSphere Business Modeler Advanced is needed to run simulations and export to the multiple code generation tools.

WebSphere Business Modeler Publishing Server

Publishing Server enables users to share process definitions and other model artifacts through a Web browser. WebSphere Business Modeler provides the capability to publish business processes that were created within WebSphere Business Modeler. Once published, authorized viewers can view and comment on the business processes using a standard Internet browser.

WebSphere Business Modeler Publishing Edition

WebSphere Business Modeler Publishing Edition is a package that includes one copy of WebSphere Business Modeler Publishing Server, and 10 licenses of WebSphere Business Modeler Advanced. WebSphere Business Modeler Publishing Edition enables team collaboration in publishing and review of business process models, where subject matter experts ensure process model accuracy while facilitating communication and participation across the organization. This bundle provides a perfect entry point for customers interested in setting up centers of excellence and competence using WebSphere Business Modeler.

For more information on WebSphere Business Modeler and other related products and services, visit <http://www.ibm.com/software/integration/wbimodeler>

Modeler's relationship with other products

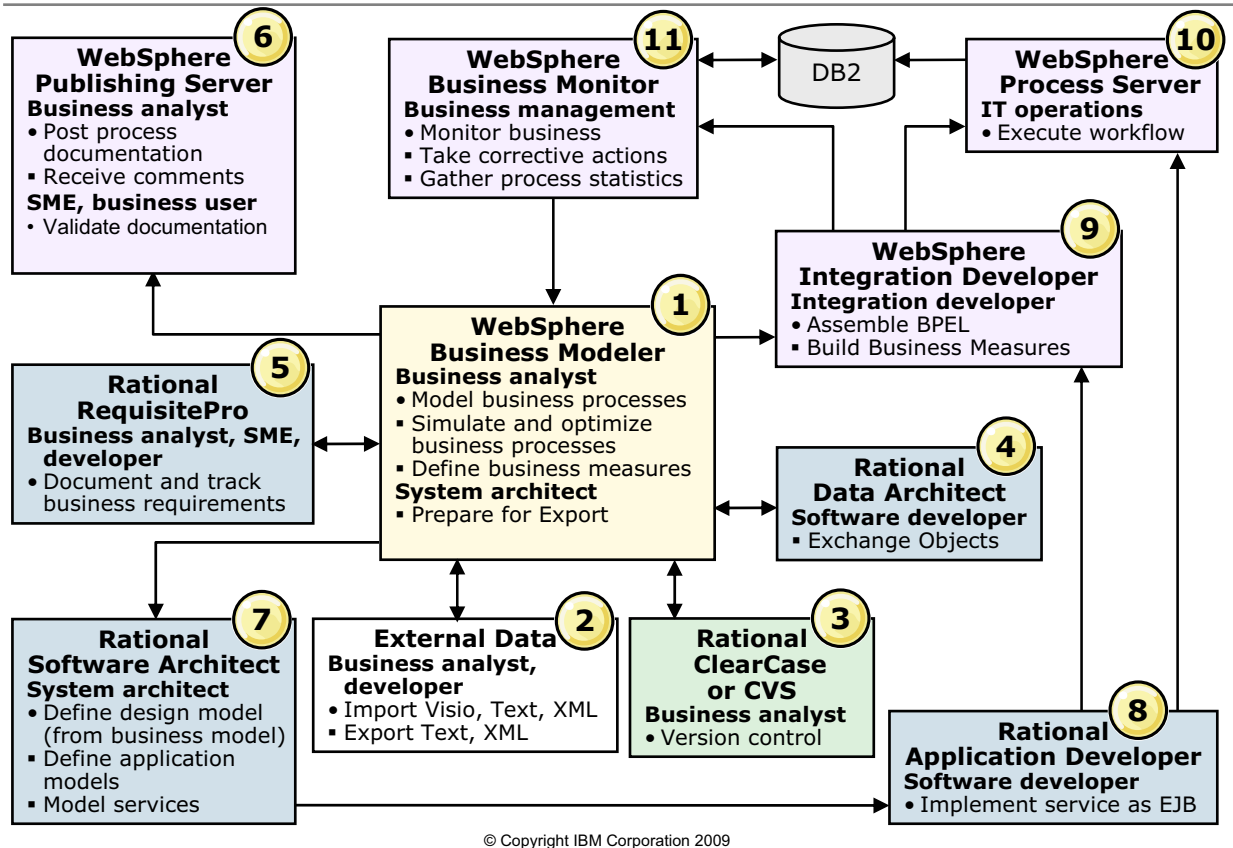


Figure 1-24. Modeler's relationship with other products

WB284 / VB2841.0

Notes:

This slide shows the integration between WebSphere Business Modeler and other IBM and non-IBM products. The numbers on this slide do **not** represent a sequence of events.

1. A process model is built using existing information or future design information in WebSphere Business Modeler.
2. Supporting information can be imported (existing Visio models, business items, business services) to support the development of the model.
3. Versions of the process model are stored in a repository for security and control using Rational ClearCase or CVS.
4. Additional IT information can be imported from Rational Data Architect to support development.
5. Business requirements are synchronized with the process model using Rational RequisitePro.
6. Models are exported to WebSphere Publishing Server for review (using a Web browser) during development and later in production.

7. When the new process is ready for development, UML models for building new services are exported to Rational Software Architect.
8. Once the software design is done, the code is developed in Rational Application Developer and exported for further development and execution.
9. Workflow code is developed in WebSphere Integration Developer using the BPEL code generated from the model and using the WSDL interfaces that were developed. The completed code is exported for execution and monitoring.
10. The workflow code is executed on WebSphere Process Server and production data is exported for monitoring and reporting.
11. Production data is monitored by management using WebSphere Business Monitor. Production data can be exported from WebSphere Business Monitor and imported into WebSphere Business Modeler for future analysis.

Checkpoint

1. Which business process management methodology focuses on improving customer value by reducing waste in: transportation, inventory, motion, waiting time, overproduction, processing, and defective products?
 2. Which of the WebSphere Business Modeler product editions supports simulation and analysis features?
 3. What type of model defines the key performance indicators and metrics used to measure the process?
 4. Define business process management.
 5. What capability in WebSphere Business Modeler is used to emulate real-world situations?
-

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Figure 1-25. Checkpoint

WB284 / VB2841.0

Notes:

Write your answers here:

- 1.
- 2.
- 3.
- 4.
- 5.

Unit summary

Having completed this unit, you should be able to:

- Explain business process management (BPM)
- Describe how service-oriented architecture (SOA) supports process improvement
- Explain which IBM products support SOA
- Describe the primary capabilities of WebSphere Business Modeler
- Explain the importance of modeling business processes
- Explain the purpose of process simulation and analysis
- Describe how to create solutions using the WebSphere Toolset by merging business needs with IT capabilities

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Figure 1-26. Unit summary

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Notes:

Checkpoint solutions

1. Which business process management methodology focuses on improving customer value by reducing waste in: transportation, inventory, motion, waiting time, overproduction, processing, and defective products?
Lean Enterprise
2. Which of the WebSphere Business Modeler product editions supports simulation and analysis features?
Advanced edition
3. What type of model defines the key performance indicators and metrics used to measure the process?
Business measures model
4. Define business process management.
Business process management (BPM) is a discipline combining software capabilities and business expertise to accelerate process improvement
5. What capability in WebSphere Business Modeler is used to emulate real-world situations?
Simulation

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Figure 1-27. Checkpoint solutions

WB284 / VB2841.0

Notes:

Unit 2. WebSphere Business Modeler overview

What this unit is about

This unit describes the overview of WebSphere Business Modeler.

What you should be able to do

After completing this unit, you should be able to:

- Explain the value of WebSphere Business Modeler
- Describe various features of WebSphere Business Modeler
- Describe the interactive process design
- Define a project and workspaces
- Navigate the user interface
- Use the WebSphere Business Modeler help function

How you will check your progress

- Checkpoint
- Lab exercises

References

None

Unit objectives

After completing this unit, you should be able to:

- Explain the value of WebSphere Business Modeler
- Describe various features of WebSphere Business Modeler
- Describe the interactive process design
- Define a project and workspaces
- Navigate the user interface
- Use the WebSphere Business Modeler help function

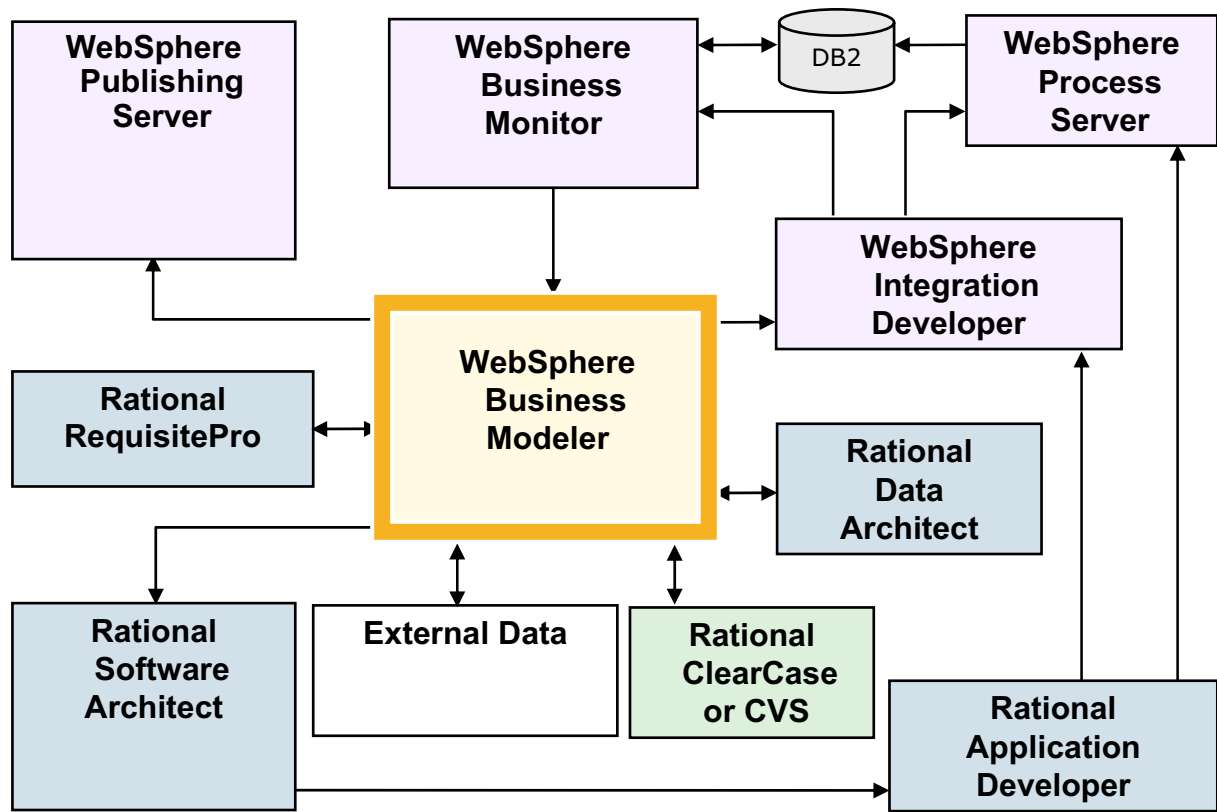
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Figure 2-1. Unit objectives

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Notes:

Creating a model using WebSphere Business Modeler



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Figure 2-2. Creating a model using WebSphere Business Modeler

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Notes:

WebSphere Business Modeler value

- Provides a common language for effective business and IT collaboration
- Allows people who know the business to model the business
- Business-focused users understand and transform their businesses through advanced business modeling, simulation, analysis, reporting, and collaboration capabilities
 - Understanding business models can increase return on investment
 - Add business measures to define key performance indicators (KPIs)
 - Add metrics that measure business process performance
 - Integrates with WebSphere Business Monitor to report on process performance
- IT-focused users export models to multiple development environments to jump-start workflow and application development

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Figure 2-3. WebSphere Business Modeler value

WB284 / VB2841.0

Notes:

- Understand and transform your business through superior business modeling, simulation, analysis, and collaboration capabilities.
- Define situations and situational outcomes in order to have key performance indicators and metrics drive appropriate and timely actions.
- Evaluate process changes prior to implementation, providing valuable cost and resource estimates.
- View animated step-by-step simulation flows of real-time data, with simulation snapshots available for reference.
- Identify and eliminate process inefficiencies, such as bottlenecks and workload imbalances, for more effective resource utilization.
- Generate reports from your models or simulation results using a wide variety of predefined report templates, or create your own custom reports.
- Anticipate market changes and make process improvements to have your business stay flexible and adaptable.

- Improve process design through fact-based simulation.
- Manage risk knowledgeably and effectively.
- Provide return on investment data to financial executives.
- Address new markets or competitive threats through process optimization.
- Set measurable goals with key performance indicators and metrics.
- Define and refine process models through your company's best practices.
- Document your business processes for regulatory compliance.
- Ensure rapid and accurate deployment of your solutions with a clean, smooth hand-off to IT.

WebSphere Business Modeler supports a heuristic approach

- Heuristic approach
 - Used for problems that lack an optimal solution such as a process design
- Heuristic problem solving
 - Involves creating a set of rules or a procedure to solve problems
 - Uses experimental and trial-and-error methods
 - Based on requirements and constraints
- Potential process requirements and constraints
 - Time to complete
 - Cost to complete
 - Number of resources available
 - Schedule of resources
 - Number of paths or cases to follow
 - Frequency of process instances and starts

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Figure 2-4. WebSphere Business Modeler supports a heuristic approach

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Notes:

Documentation features

- Captures and models sequences of activities, complex logic, and business rules
- Specific modeling constructs to represent different types of work and flow logic
- Ability to represent the process in two different layouts, free-form and swimlane, and switch back and forth as needed
- Elements to represent different types of work
- Structures to represent the organization of the resource elements
- Stores several different types of process-related information based on the level of analysis to be performed
- Ability to attach additional process documentation
- A set of catalogs to organize all model information

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Figure 2-5. Documentation features

WB284 / VB2841.0

Notes:

Simulation features

- Simulation allows you to assess process performance, generate statistics, and pinpoint potential areas of improvement
- Average or statistically-varying durations can be applied to work activities to analyze cycle time
- Resources assigned to activities are included when calculating process costs
- Flows can be animated during simulation, allowing visualization of real-time flow of process
- Simulation results are available for analysis and reference
- Simulation enables determination of the most efficient model prior to implementation by conducting “what-if” analysis

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Figure 2-6. Simulation features

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Notes:

When you have completed modeling a business process, you can run a simulation of a process to get an animated view of the process operation and to generate a set of statistical results of the process. Simulating allows you to assess the performance of the process, generate statistics, and pinpoint potential areas of improvement.

Simulations are the pay-off for all the work you put into the model. Like building a three-dimensional model of a house or an airplane, you “walk around” from different perspectives, change the parameters to see the impact, and get the dynamic aspect that goes beyond simple mapping.

Analysis features

- Visual analysis
 - Color-code the elements by role, classification, or organization units
 - Display labels above and below process model elements
- Static analysis
 - Displays activities by organization, location, classification
 - Displays role and resource cost and availability
 - Matrix analysis shows associations between model elements
- Simulation permits analysis of workloads and bottlenecks
 - Cycle time
 - Costs
 - Resource utilization
- Dynamic analysis
 - Validate current conditions
 - Evaluate the benefits of different alternatives
 - Build a business case for the future

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Figure 2-7. Analysis features

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Notes:

Models are created using different editors

- Process editor
 - The Process editor is used to graphically compose the details of a process flow
- Definition editor
 - The definition editor is used to specify the attributes for most items that are created in the Project Tree view
- Structure editor
 - The structure editor is a graphical editor that you can use to model organizational structures and relationships
- Simulation editor
 - The simulation editor is used to specify attributes in the simulation profile, such as the quantity of available resources, or the number, rate, and composition of inputs to the process
- Map editor
 - The map editor is used to create and edit relationships between inputs and outputs when transforming data from one format to another in business items
- Expression Builder
 - The Expression Builder is a tool that enables you to add and document the rule logic or calculations required at specific points in your business processes

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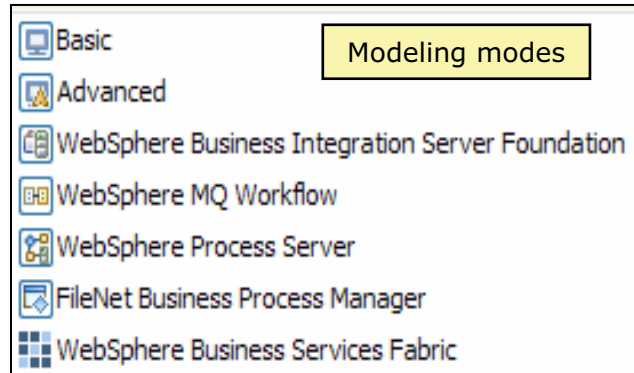
Figure 2-8. Models are created using different editors

WB284 / VB2841.0

Notes:

Support for other products and multiple-user environments

- Seven modes designed to support specific development efforts
 - Three for model development and analysis
 - Four for technology implementation
- Version control support
 - Use a repository to share Modeler files
 - Features such as share, update, commit, synchronize, get contents, compare versions, audit trail
 - View history of all changes to the models
 - CVS and IBM Rational ClearCase are supported
- Web publishing support
 - Draft and released versions
 - Access control
 - Collaboration with those that do not have modeler
- Support for creation of business measures for monitoring



- Business requirement management support
 - Link requirements to model elements using IBM Rational RequisitePro
- Sharing assets
 - share the business process management (BPM) artifacts with IBM Rational Asset Manager

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Figure 2-9. Support for other products and multiple-user environments

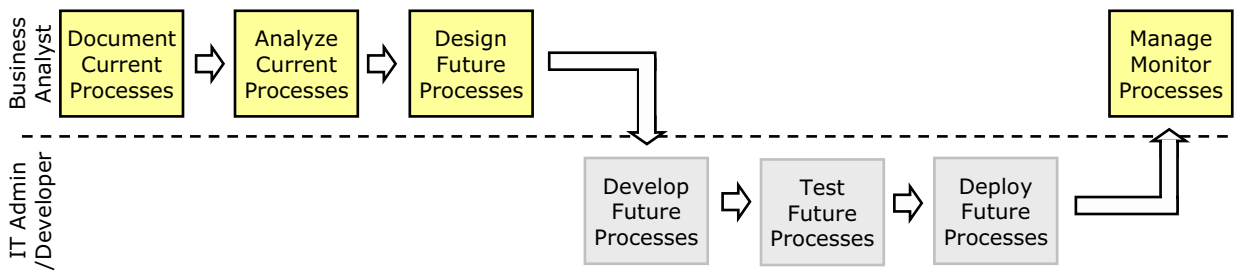
WB284 / VB2841.0

Notes:

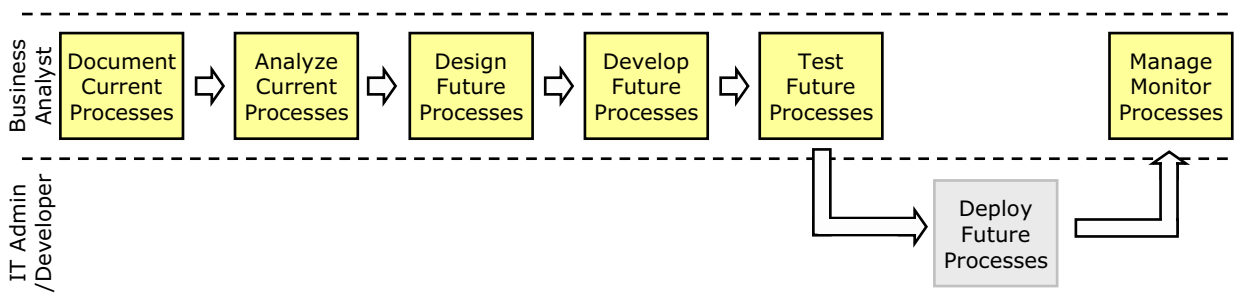
Modeler eases both use and presentation by allowing the user to change modes to present varying levels and types of detail without losing any of the information captured. It also facilitates sharing the resulting model among the modeling team with support for version control.

Interactive process design accelerates time to value

- The traditional approach requires more IT involvement



- The interactive process design approach allows the business analyst to develop and test the new workflow



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Figure 2-10. Interactive process design accelerates time to value

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Notes:

Interactive process design

IPD is designed to allow Business Analysts to create, debug and test business process applications, and deploy these into production without IT involvement

IPD support is actually about

- Time-to-value
 - Enabling executable process models to be fully-defined and tested in one tool for typical use cases (no need to export from Modeling to IT tools)
- Well defined separation between LOB and IT roles and skills, with well defined collaboration points. IT engages in:
 - Environment setup, configuration, and management
 - Business service creation and publishing
 - Assistance with complex problem-determination

- Assistance with production deployment
- Integration across the BPM family stack (tools and runtime)
 - End-to-end scenarios/ “green threads” around service creation and use
 - Tooling SOA “best practices” (“patterned” applications)
 - “Self-service” support for execution across runtime stack

Modeling human-centric processes

By adding human tasks to your process diagrams, you can model human-centric processes. You can also create any electronic forms required for these processes and associate the forms with your human tasks.

If you have forms created in Lotus Forms Designer, you can import these forms to use in WebSphere Business Modeler.

Modeling human tasks

You can capture the places in your business processes where a system assigns an activity for a person to do using a human task.

Creating storyboards for human tasks with forms

You can create storyboards to step through sequences of human tasks in a process, for example, to demonstrate the flow of a new human-centric process and provide stakeholders with a preview of the forms that are involved in the completion of each human task. Storyboarding allows you to view the forms associated with a human task side-by-side with the process diagram, mimicking the task owner's interaction with the form.

Simulating human tasks with forms

To allow you to interactively simulate business processes and perform more realistic data driven simulations, you can simulate the completion of human tasks that involve forms interactions. When enabled, you are prompted during the simulation run to complete any forms required by the human tasks in the process. The data that you enter is used to populate the business items passed on to subsequent tasks and decisions in the process flow, potentially influencing the execution path of the process.

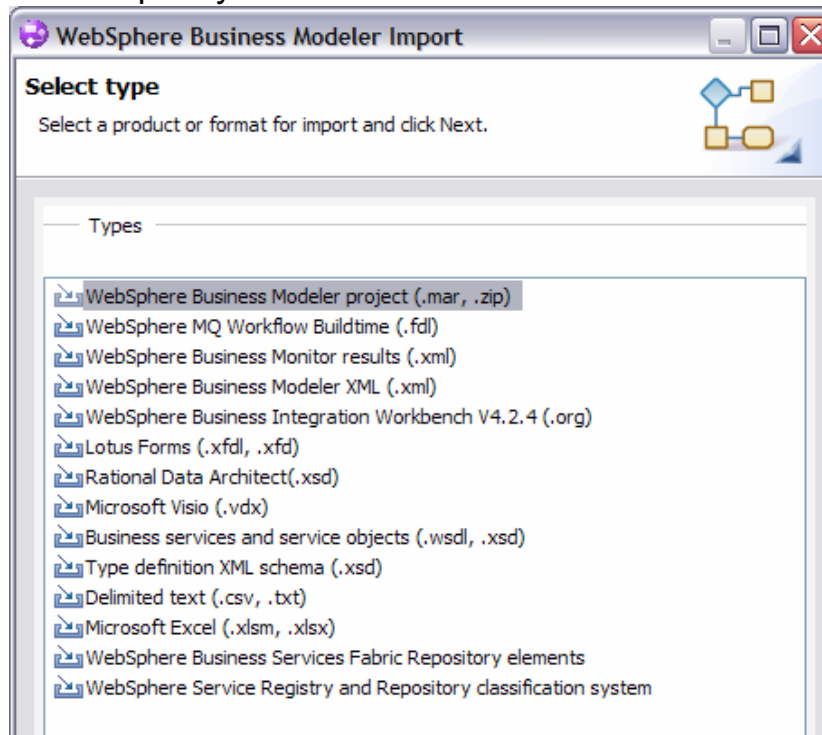
Rapid testing of human-centric processes

To ensure that a human-centric process works properly, you need to be able to verify that the people assignments for your human tasks work correctly. When no elements in the process require application logic, you can quickly and easily test such a process in the WebSphere Integration Developer test environment.

See appendix for more details on interactive process design.

Importing

- Importing information from a variety of sources facilitates building business process models quickly



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Figure 2-11. Importing

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Notes:

Import formats

WebSphere Business Modeler allows you to import information from a variety of sources to facilitate building business process models quickly.

The information used by WebSphere Business Modeler may already exist in another application, tool, file format, or another copy of WebSphere Business Modeler. WebSphere Business Modeler provides a wizard to help you import this information into a new project or into an existing project. WebSphere Business Modeler supports the following types of imports:

WebSphere Business Modeler project imports a set of complete projects or specific model elements exported from WebSphere Business Modeler, providing a way to share modeling information with other people. The file type used in this import is a MAR file for projects exported using WebSphere Business Modeler version 6.0.2 or later, and a ZIP file for projects exported using version 6.0.1 or earlier. The MAR or ZIP file contains a set of WebSphere Business Modeler project files.

WebSphere MQ Workflow Buildtime imports a model developed in IBM WebSphere MQ Workflow Buildtime and exported in a FlowMark Definition Language (FDL) file. The process maps each MQ Buildtime element to a WebSphere Business Modeler element that provides the same or similar functionality.

WebSphere Business Monitor results imports XML files that have been exported from WebSphere Business Monitor.

WebSphere Business Modeler XML imports the project or model elements defined according to the WebSphere Business Modeler schema. This schema provides other modeling tools with an interchange format that they can use to share information with WebSphere Business Modeler. The schema is in the \samples\import\xml folder.

WebSphere Business Integration Workbench V4.2.4 imports an organization from version 4.2.4 of WebSphere Business Integration Workbench. This format provides a way to migrate from this product to WebSphere Business Modeler.

Lotus Forms imports forms created in Lotus Forms or WebSphere Integration Developer. Forms represent the electronic forms that people use to complete a human task. When you import a form, two elements are created in the Project Tree view: a form element to use with any human task, and a business service object that reflects the underlying data structure of the form.

Rational Data Architect imports data definitions contained in XML Schema Definitions (XSD) files that have been created with the LDM-XSD plug-ins for Rational Data Architect into business objects. Unlike the Business services import, the resulting business objects are fully editable so that you can modify their attributes as you work.

Microsoft Visio imports diagram VDX files and converts the shapes and connectors to equivalent model elements.

Business services and service objects imports data definitions contained in XML Schema Definition (XSD) files into a business service object catalog and service definitions contained in WSDL files into a business service catalog. This import type preserves the WSDL and XSD definitions so that when you export the business services and business service objects, the resulting WSDL and XSD files match the files used to import them.

Type definition XML schema imports data definitions contained in XML Schema Definition (XSD) files into a data catalog, resource catalog, or organization catalog depending on what type you are importing. When you export the objects created through this import type, the resulting XSD files do not exactly match the XSD files used in the import.

Delimited text imports delimited text files. Delimited text is a simple file format that consists of text separated into meaningful chunks by specific characters. The chunks of text are usually individual fields. The specific character is called a delimiter, and can be any character that is not found in the text, such as comma or tab. The wizard can only create certain elements and certain attributes by importing from delimited text files.

WebSphere Business Modeler provides a Microsoft Excel spreadsheet and several text files as examples of how you would prepare a delimited text file so that the import process can import it. In the file, the first row contains the predefined field names for a particular type of import and they should not be changed.

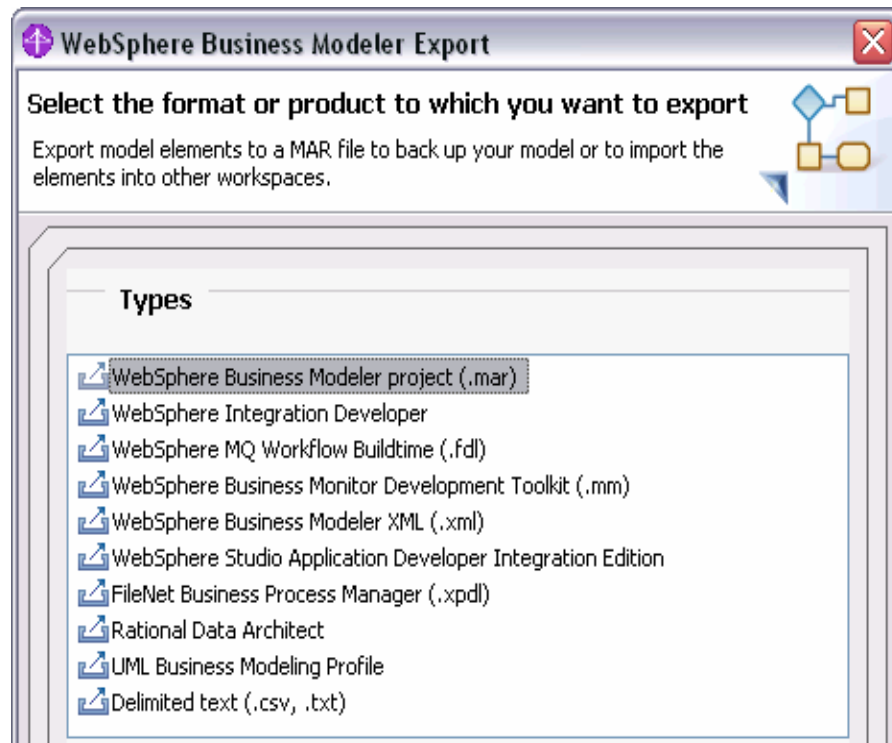
Microsoft Excel imports data from a Microsoft Excel spreadsheet. You can use the provided Microsoft Excel spreadsheet templates to gather and define model information, which you can then import into WebSphere Business Modeler to populate or expand your models.

WebSphere Business Services Fabric Repository elements imports elements from a WebSphere Business Services fabric repository. It uses an Import wizard to import elements from a WebSphere Business Services fabric repository.

WebSphere Service Registry and Repository classification system imports classification systems and classes from a WebSphere Service Registry and Repository server. After importing a classification system, you can assign classifiers to your tasks and services in your process models to help locate and connect to existing services when the process is deployed.

Exporting

- Exports project from Modeler to another application



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Figure 2-12. Exporting

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Notes:

After modeling business processes in WebSphere Business Modeler, you can export information to another application to, for example, implement the business processes. You can also export a project so that another person can import it to view or work on it.

WebSphere Business Modeler provides a wizard to help you export this information into a format that the other application can read. WebSphere Business Modeler supports the following types of exports:

WebSphere Business Modeler project exports the selected project or elements into a MAR file. This file can then be imported by another copy of WebSphere Business Modeler, providing a way of sharing business process models. This format is the recommended one to use when sharing models because it exports all of the information captured by WebSphere Business Modeler about a project or element. For example, this export includes position information for diagrams while other exports, such as WebSphere Business Modeler XML, do not. Use this type of export to share projects between members of a modeling team.

WebSphere Integration Developer exports Service Component Architecture (SCA) artifacts and Business Process Execution Language (BPEL), Web Services Description Language (WSDL), and XML Schema Definition (XSD) files that can be imported into WebSphere Integration Developer to create an implementation for WebSphere Process Server.

WebSphere MQ Workflow Buildtime exports the selected project or element into a FlowMark Definition Language (FDL) file. This file can then be imported into IBM WebSphere MQ Workflow Buildtime. Note that if you import an FDL file into WebSphere Business Modeler and then export it out again as an FDL file, the export file may not be the same as the import file due to transformations that occurred while importing the information into WebSphere Business Modeler.

WebSphere Business Monitor Development Toolkit exports to an MM (monitor model) file and to two or more SVG files. The monitor model can be refined in the toolkit and then deployed to WebSphere Business Monitor.

WebSphere Business Modeler XML exports the selected project or element into an XML file. The file conforms to the WebSphere Business Modeler schema. The schema provides an external interchange format that other modeling tools can use to obtain information from WebSphere Business Modeler. The schema is in the \samples\import\xml folder.

WebSphere Studio Application Developer Integration Edition exports the selected project or elements into BPEL, WSDL, and XSD files. These files can then be imported into IBM WebSphere Studio Application Developer Integration Edition.

FileNet Business Process Manager exports the selected process or process catalog as XPDL files. These files can then be opened with the Process Designer of FileNet P8 to create implementations for the FileNet P8 runtime environment.

Rational Data Architect exports the selected business objects into XSD files. These files can then be imported into Rational Data Architect through the use of an XML to LDM transform.

UML Business Modeling Profile exports the selected project or elements into a UML 1.4 XMI 1.1 file. Each data definition is mapped to a UML Class, and each process is mapped to a UML Use Case and associated with a UML Activity Graph to represent the process flow. The resulting file of the export can be imported into IBM Rational XDE (eXtended Development Environment) 2003.06.00 or 2003.06.12 edition.

Delimited text exports the selected project or element into a text file. The fields that describe elements are separated by delimiters (special characters). The delimited text file can be imported into any application, such as Microsoft Excel, that imports delimited text.

User interface: Eclipse

- WebSphere Business Modeler's user interface is built on Eclipse, an open source framework that controls multiple panes in one window
- The interface can be changed quickly by clicking a button for standard settings
 - Switch to four-pane, two-pane, or single-pane layout
- Customize layout: Add more than four panes, relocate panes, or resize panes
- Each pane becomes full screen by double-clicking the pane tab

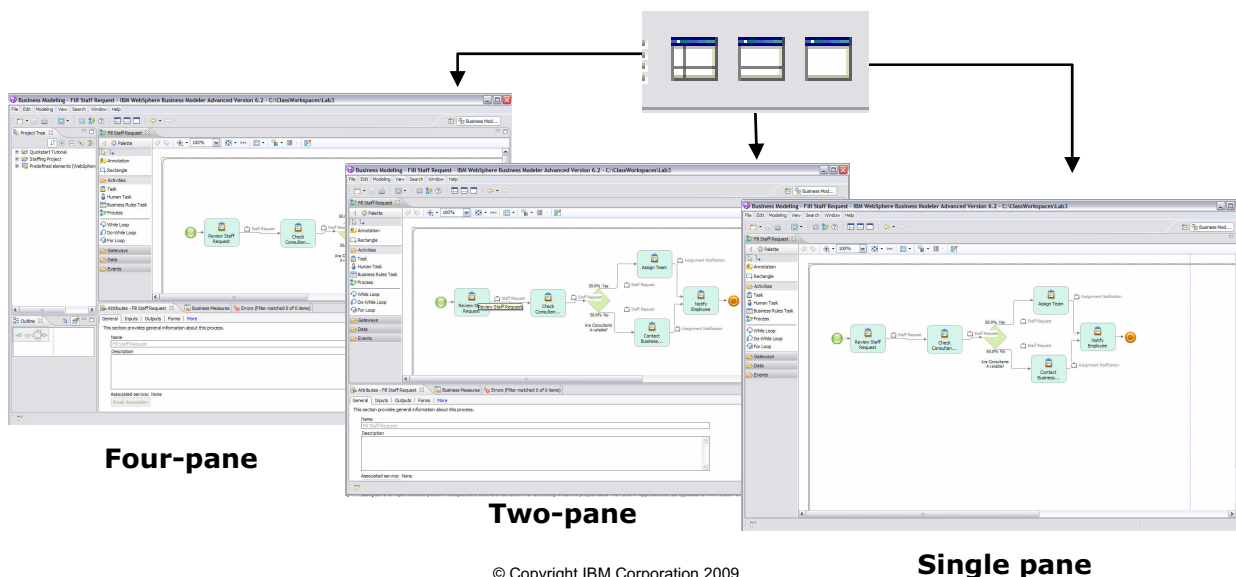


Figure 2-13. User interface: Eclipse

WB284 / VB2841.0

Notes:

Eclipse is an open source platform-independent software framework for delivering what the project calls “rich client” applications, as opposed to “thin client” browser-based applications. So far this framework has typically been used to develop integrated development environments (IDEs), such as the Java IDE called *Java Development Toolkit* (JDT) and the Eclipse Java Compiler (ECJ) that comes as part of Eclipse (and which is also used to develop Eclipse itself). However, it can be used for other types of client applications as well, such as the BitTorrent client Azureus.

Four-pane layout

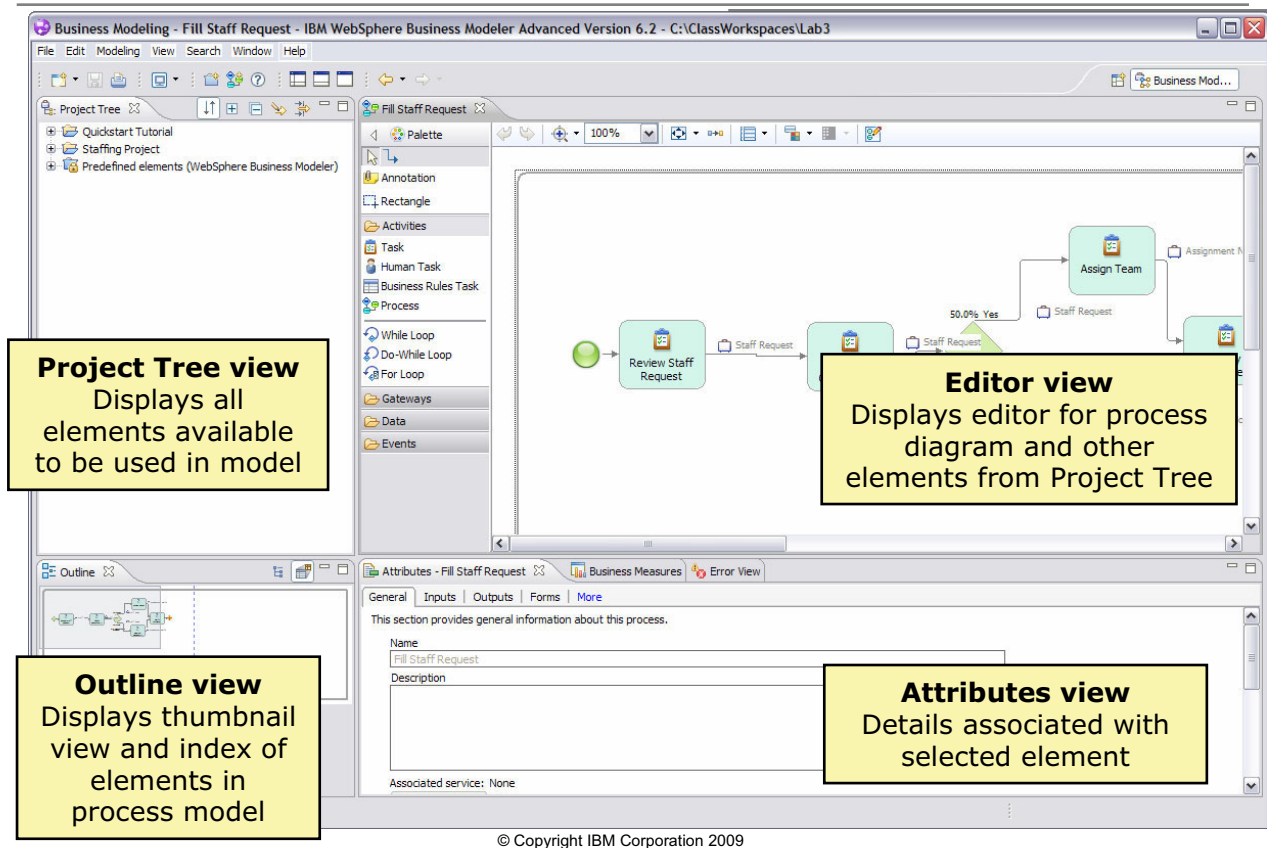


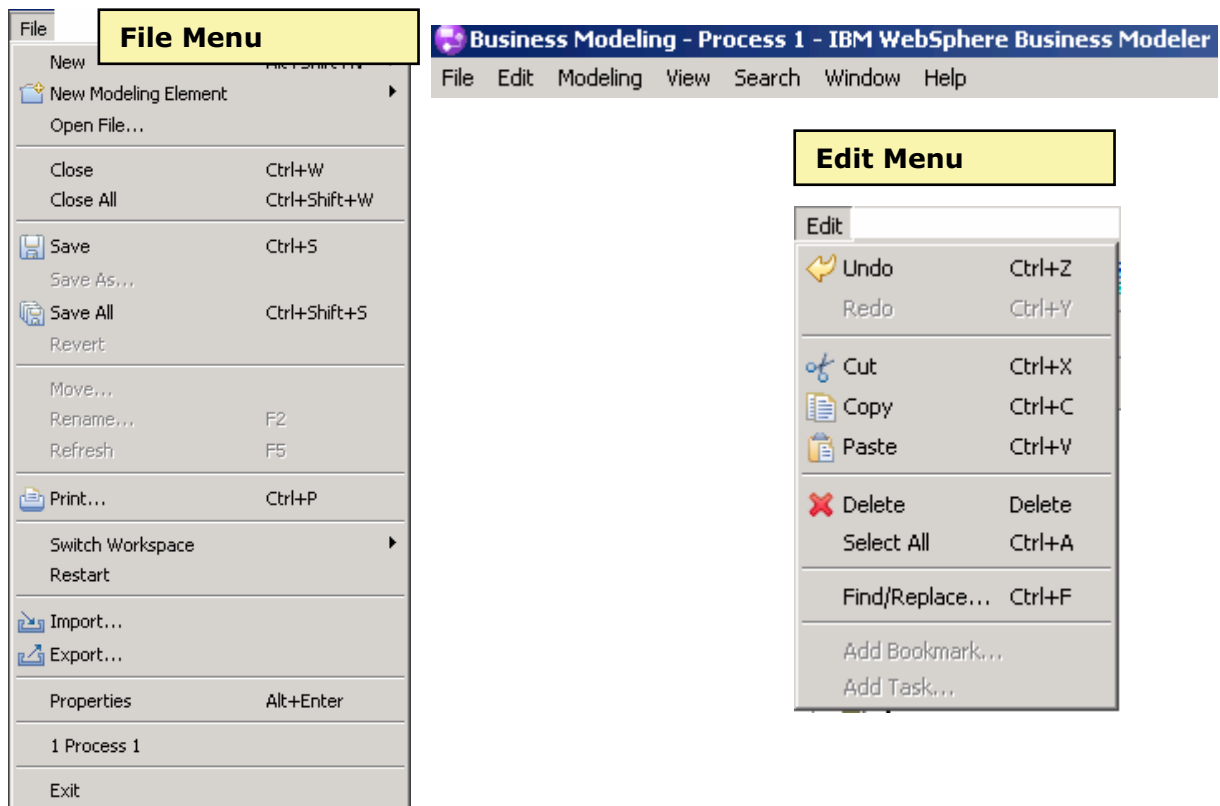
Figure 2-14. Four-pane layout

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Notes:

The number and type of tabs in the attributes view varies by modeling mode.

Basic menu bar navigation (1 of 3)



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Figure 2-15. Basic menu bar navigation (1 of 3)

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Notes:

Basic menu bar navigation (2 of 3)

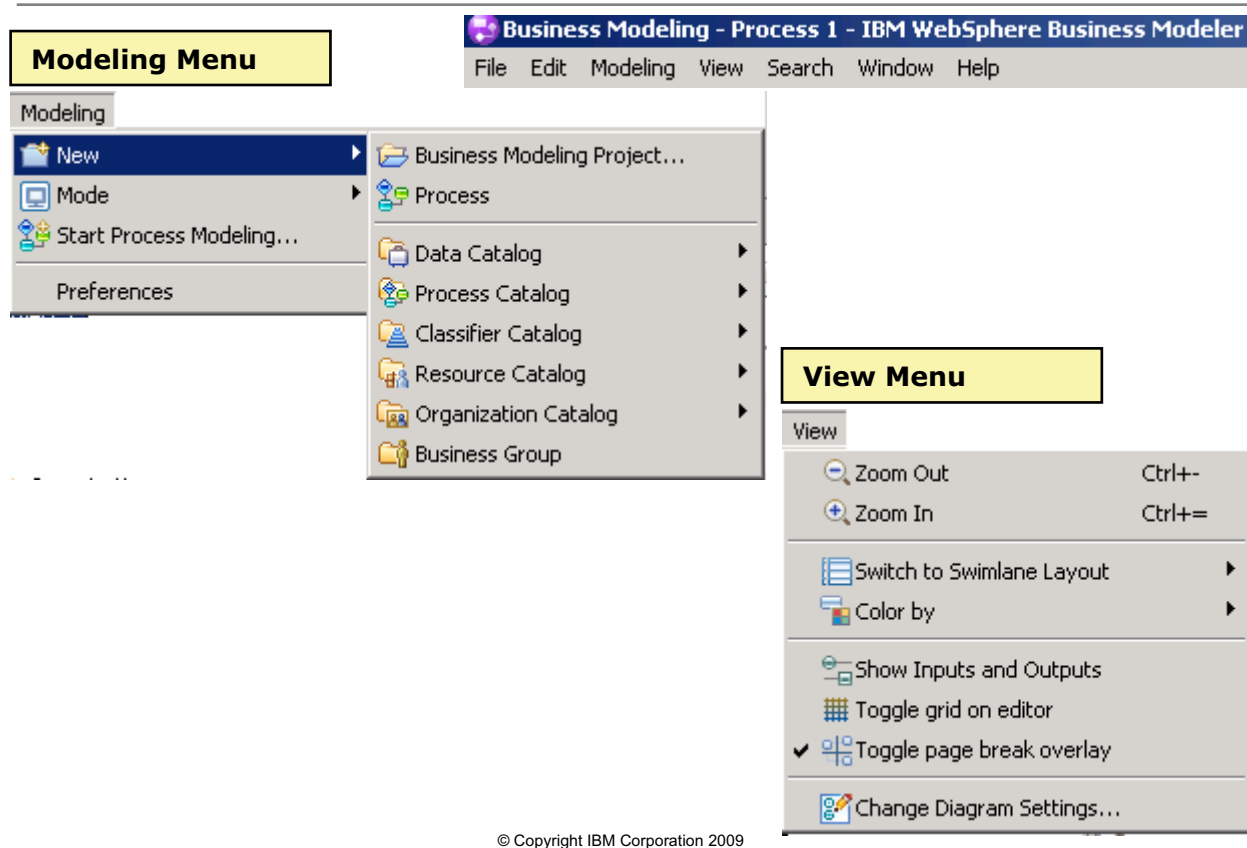
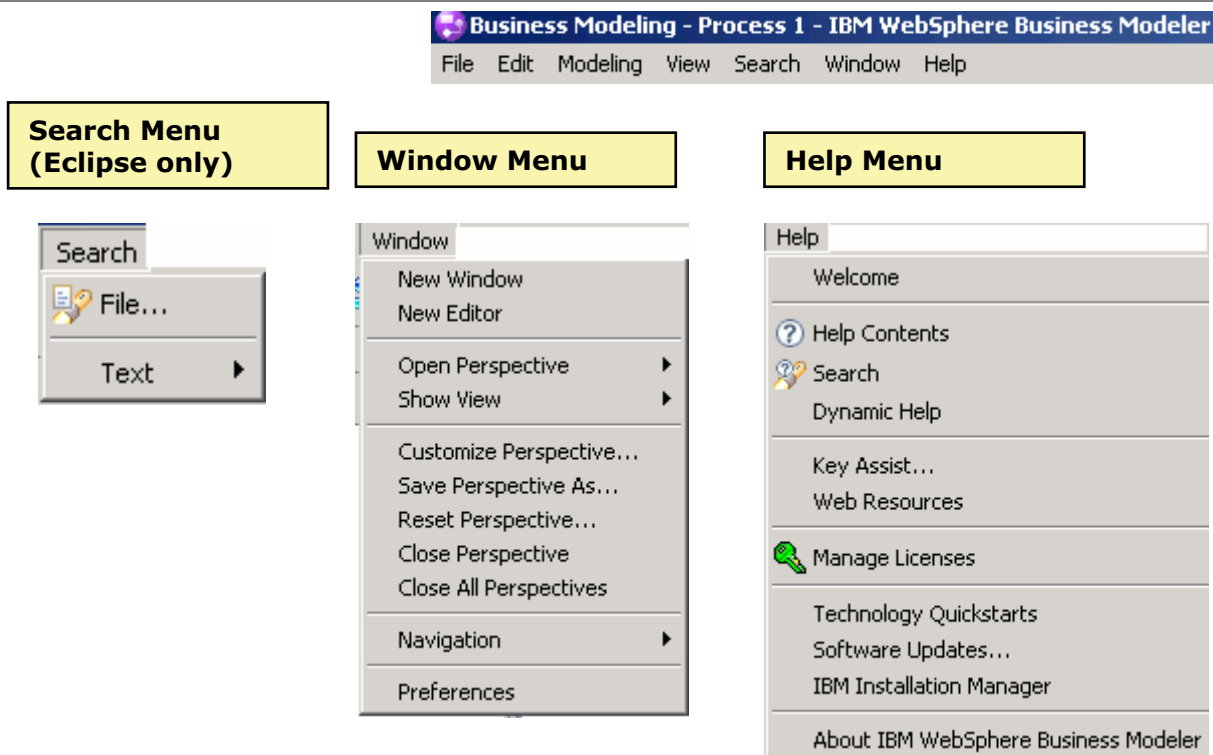


Figure 2-16. Basic menu bar navigation (2 of 3)

WB284 / VB2841.0

Notes:

Basic menu bar navigation (3 of 3)



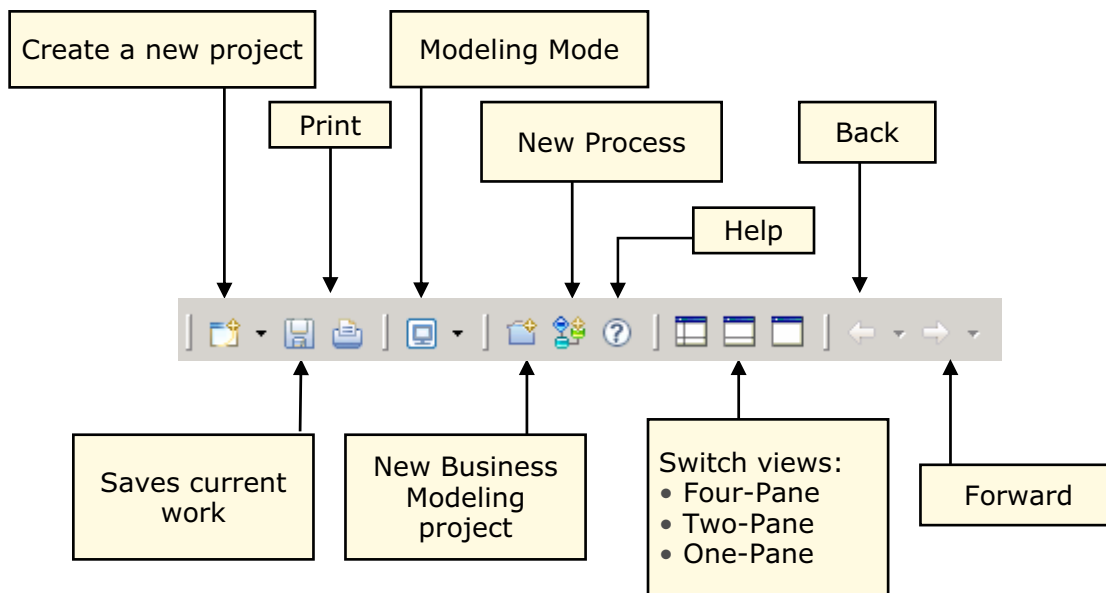
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Figure 2-17. Basic menu bar navigation (3 of 3)

WB284 / VB2841.0

Notes:

Basic tool bar navigation



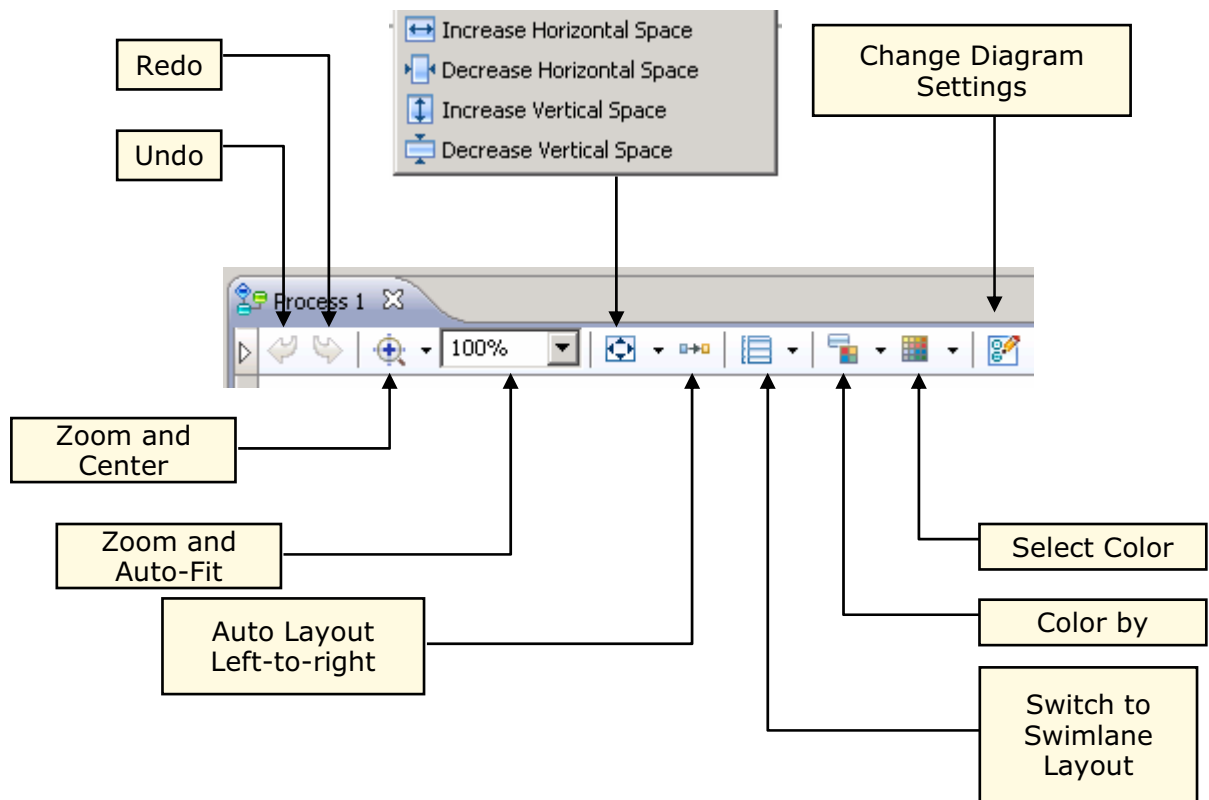
© Copyright IBM Corporation 2009

Figure 2-18. Basic tool bar navigation

WB284 / VB2841.0

Notes:

Process editor navigation



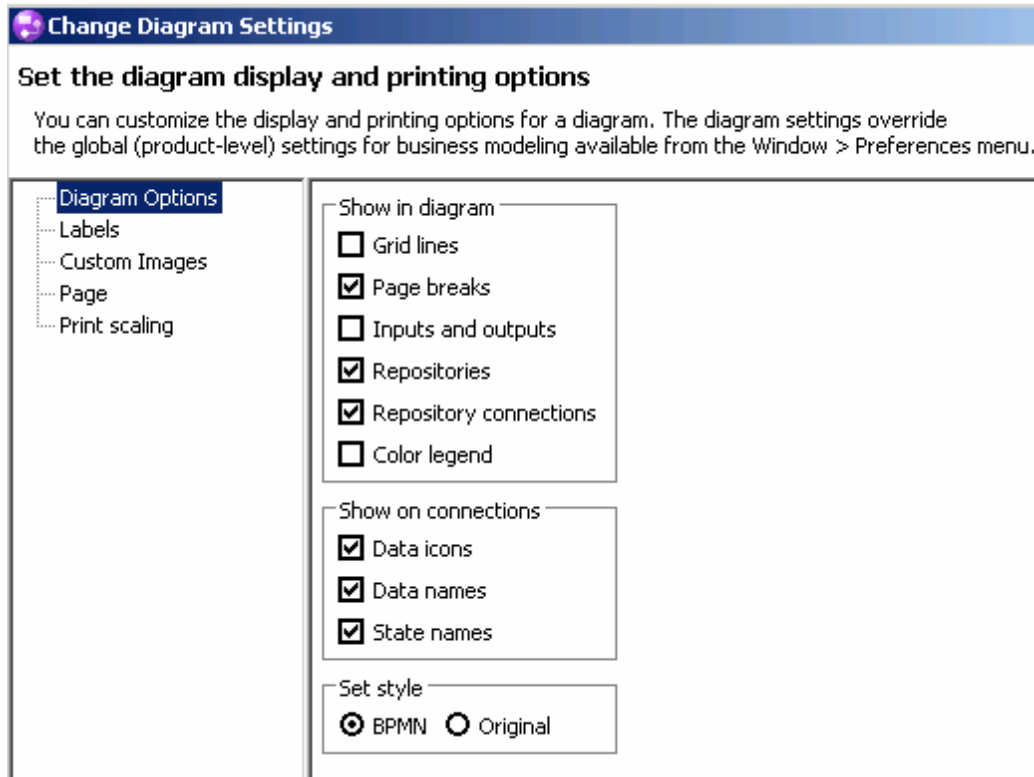
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Figure 2-19. Process editor navigation

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Notes:

Change diagram settings: diagram options



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Figure 2-20. Change diagram settings: diagram options

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Notes:

Change diagram settings: labels

Diagram Options
Labels
Custom Images
Page
Print scaling

To display attribute information for elements, click in the "Top label" or "Bottom label" cell for an element type and select the information to show.

☒ Display information labels on the diagram

Element type	Top label	Bottom label
Local task	<hide label>	<hide label>
Local business rules task	<hide label>	<hide label>
Local human task	<hide label>	<hide label>
Global business rules task	<hide label>	<hide label>
Global human task	<hide label>	<hide label>
Global task	<hide label>	<hide label>
Global service	<hide label>	<hide label>
Global service operation	<hide label>	<hide label>
Local process	<hide label>	<hide label>
Global process	<hide label>	<hide label>
Notification broadcaster	<hide label>	<hide label>
Notification receiver	<hide label>	<hide label>
Observer	<hide label>	<hide label>
Timer	<hide label>	<hide label>
Map	<hide label>	<hide label>
While loop	<hide label>	<hide label>
Do-while loop	<hide label>	<hide label>
For loop	<hide label>	<hide label>
Local repository	<hide label>	<hide label>
Global repository	<hide label>	<hide label>

☒ Include the attribute name in the label

☐ Show Project Tree locations of attributes (if applicable)

☐ Hide decision percentage labels

Restore Global Preferences

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





Figure 2-21. Change diagram settings: labels

WB284 / VB2841.0

Notes:

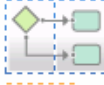
Change diagram settings: images, page, and print


Custom images

Element type	Image
Local task	
Local business rules task	
Local human task	
Global business rules task	
Global human task	
Global task	
Global service	
Global service operation	
Local process	
Global process	
Notification broadcaster	
Notification receiver	
Observer	
Timer	
Map	
While loop	
Do-while loop	
For loop	
Local repository	
Global repository	

Page format

Print format

☒ Poster 

☐ Report 

☐ Split connections crossing page breaks

Print scale

Scaling options

☒ Scale to 100%

☐ Fit to page

☐ Fit to 1 pages across

☐ Fit to 1 pages down

☐ Maintain diagram proportions when scaling

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Figure 2-22. Change diagram settings: Images, page, and print

WB284 / VB2841.0

Notes:

Model diagram creation navigation: palette

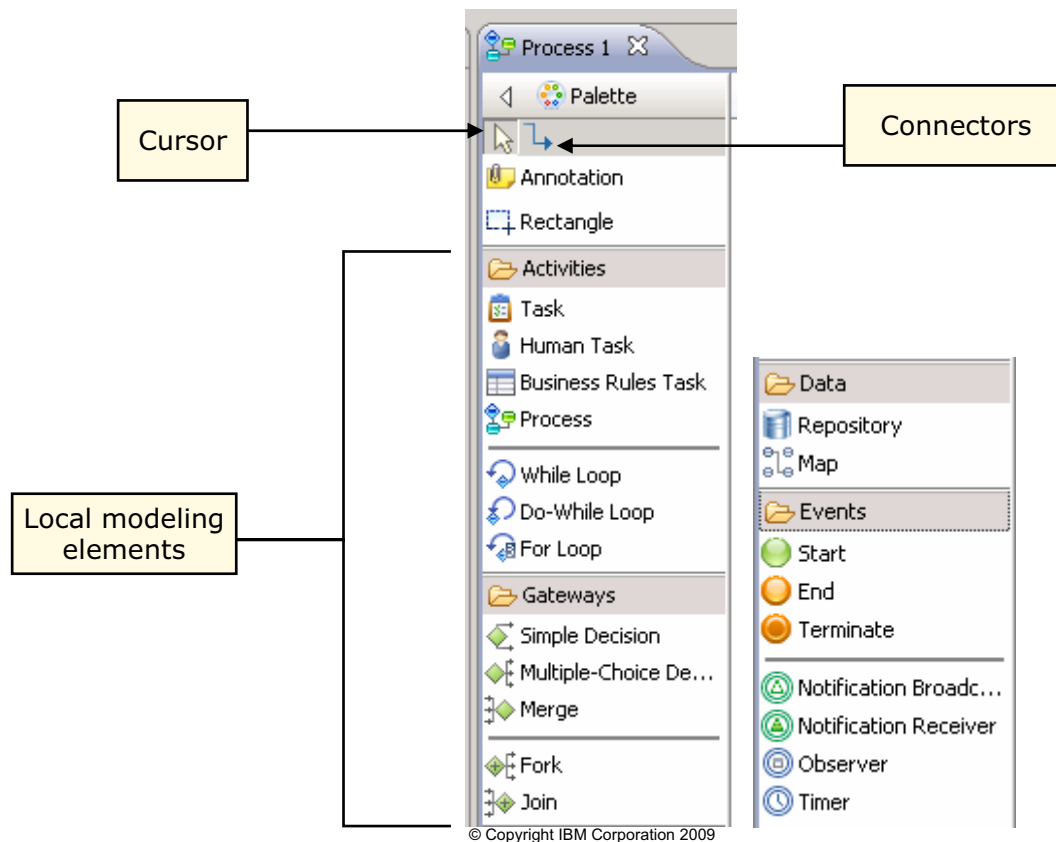


Figure 2-23. Model diagram creation navigation: palette

WB284 / VB2841.0

Notes:

Basic elements used in a process model

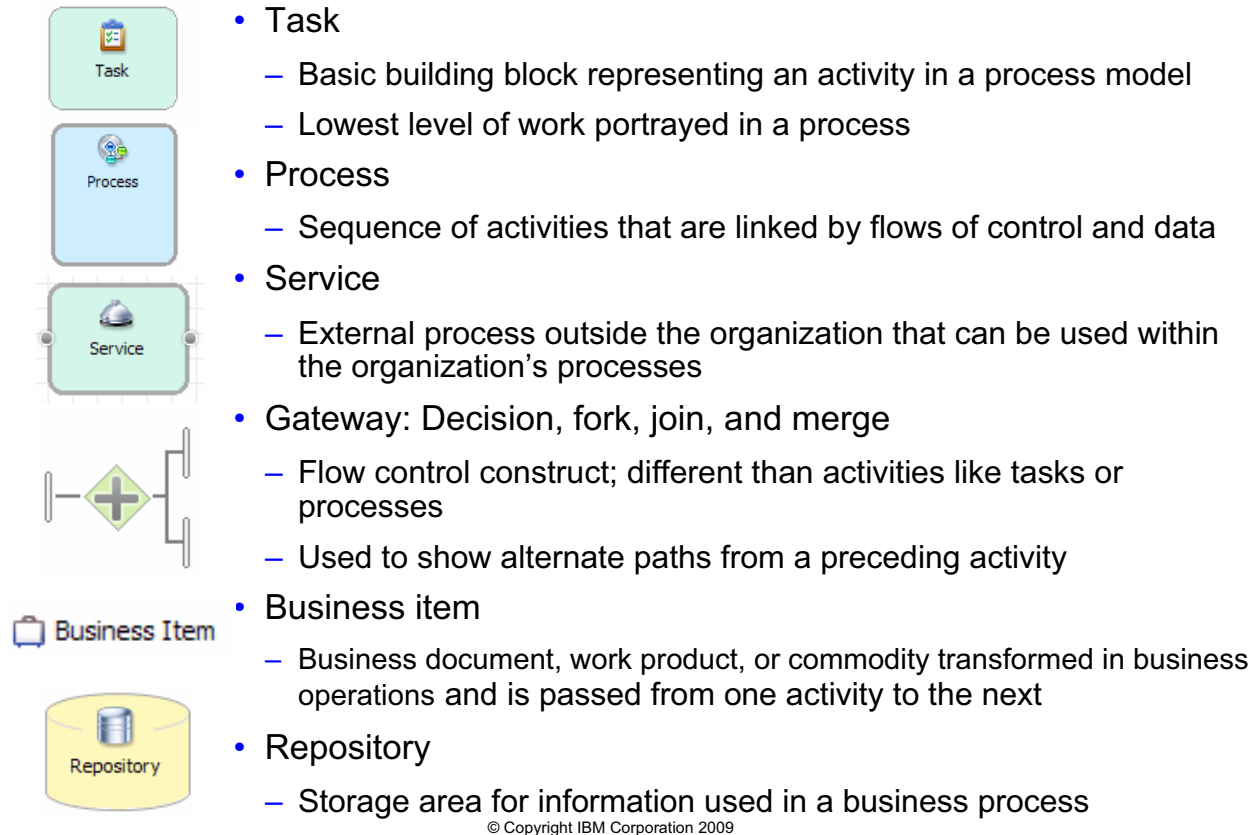


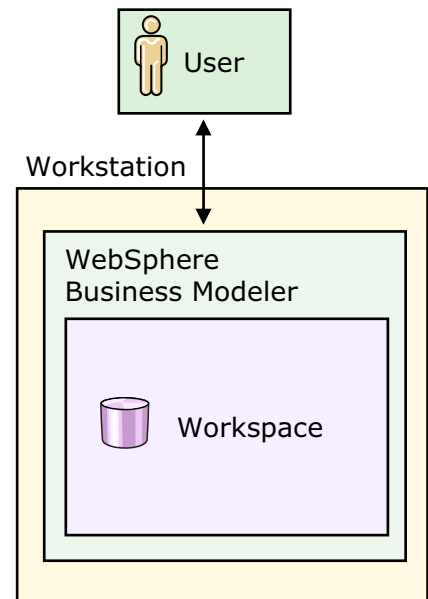
Figure 2-24. Basic elements used in a process model

WB284 / VB2841.0

Notes:

Workspace

- A folder in which WebSphere Business Modeler stores model information and user preferences on the hard drive
- Only one workspace can be open for each instance of WebSphere Business Modeler
- Each workspace can contain multiple projects
 - Elements across all projects in the same workspace cannot share the same name



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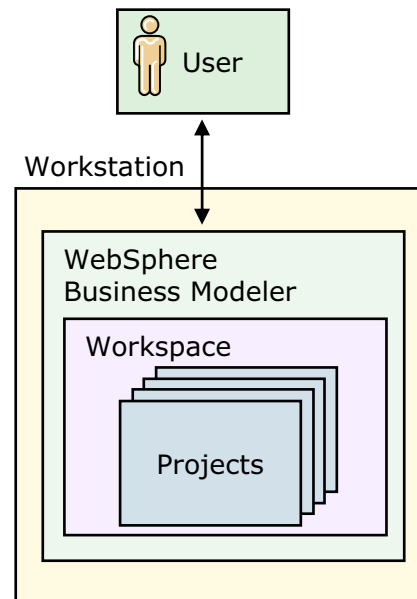
Figure 2-25. Workspace

WB284 / VB2841.0

Notes:

Project

- A grouping of models and other artifacts related to a single work effort
- Top-level container that holds all of the catalogs, processes, and modeling elements related to a particular work effort
 - A single project can hold all of the modeling elements for your company or organization, or
 - A separate project can be created for different business processes, functions, or work groups
 - Separate projects in the same workspace can share elements through use of references
 - Common project should be used for large modeling efforts
- Creating a project is the first step in modeling a new process



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Figure 2-26. Project

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Notes:

Project Tree view

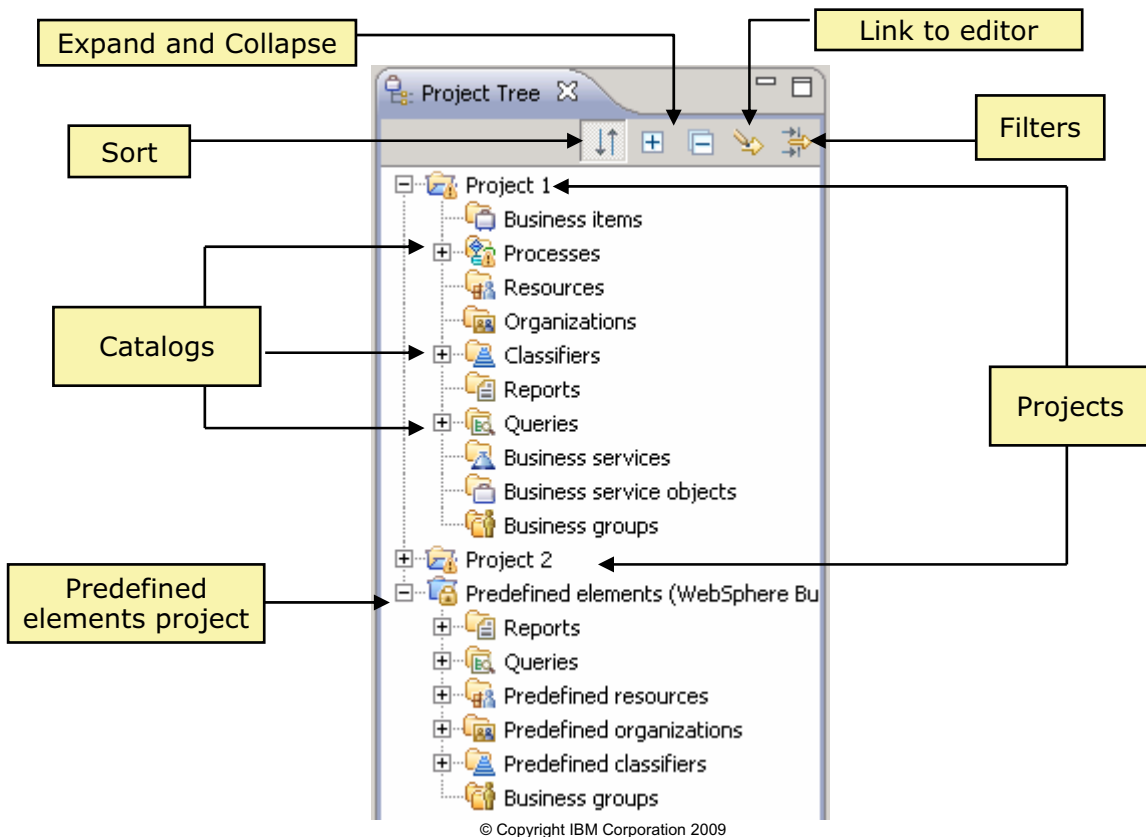


Figure 2-27. Project Tree view

WB284 / VB2841.0

Notes:

Buttons in Project Tree view toolbar

Sort - Sorts all items in the Project Tree view alphabetically

Click the button to disable sorting if you want to arrange the items manually to reflect frequency of use or relative importance of items within a catalog.

Regardless of whether the button is selected, there is a fixed order for item types within a catalog. For example, within the Process catalog, processes always come before tasks. Even if the logical nodes are not visible, you cannot change the order of these item types. For example, within the process catalog, even if you cannot see the separate containers for processes and tasks, you will not be able to reorder a task before a process.

The sorting mode and order of items is maintained when the product is restarted, and when catalogs are imported and exported. However, the ordering of items is not maintained when using project versioning. A catalog that is checked in and out again will revert to the default alphabetical ordering.

Expand - Expands all branches of the navigation tree at or under the branch you have selected

Collapse - Collapses all branches of the Project Tree

Link to editor - Enables you to choose whether the Project Tree selection is linked to the active editor

Filters - Opens a window that you can use to select the types of items that are displayed in the tree

Catalogs

A catalog is a container that holds elements of related types within your model.

A catalog performs the same function as a folder in a traditional directory structure. Catalogs group elements of the same type together in the Project Tree view. For example, you can group any process that you create in a catalog called *Processes*.

When you create a project, a number of catalogs are created for you by default, according to the different elements that you can model. Some contain predefined elements, while others are designed to hold the model elements that you create. These include the following catalogs:

- Business items (data catalog)
- Processes
- Resources
- Organizations
- Classifiers
- Reports
- Queries
- Business services
- Business service objects

You can use these catalogs to store your model elements, or you can create new catalogs that more accurately reflect how you want to set up your project. For example, rather than use the default *Processes* catalog to store all of your processes, you might want to create new catalogs called *Accounting*, *Human Resources*, and *Order Fulfillment*. You can create any number of catalogs, organized according to how you wish to maintain your project

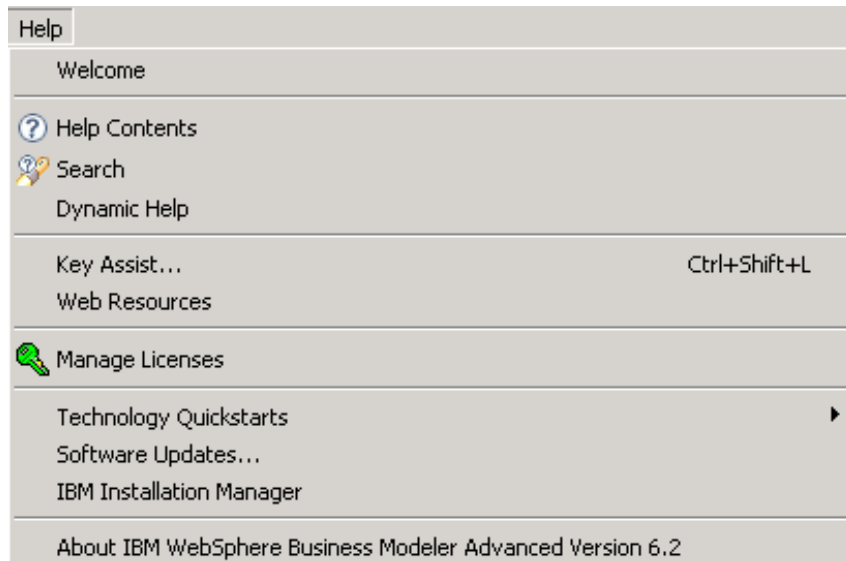
Predefined elements project

This project is added to your workspace when you first start up Modeler. These elements cannot be modified or renamed, but they can be used as the basis for model elements in your own models.

Predefined elements help you get started building your models. These predefined elements include reports and queries, resource definitions, organization definitions, business measure templates, and classifiers.

WebSphere Business Modeler Help menu

- Welcome
 - Complete set of support topics: what's new, tutorials, samples, hints and tips, product support, Web resources
- Start Process Modeling
 - Launches a wizard to create a new project quickly
- Modeler Help
 - Help database
- Software Updates
 - Retrieve the latest product updates



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Figure 2-28. WebSphere Business Modeler Help menu


WB284 / VB2841.0

Notes:

Modeler help: tutorials

[WebSphere Business Modeler Advanced](#) > [Introduction to WebSphere Business Modeler](#)

Getting started

 [Show Me](#)

After you install WebSphere® Business Modeler, you can become familiar with the product by examining the interface, learning about the editors, exploring the samples, and beginning to model a simple process.

You can learn how to model a short business process using the Process editor by clicking the "Show Me" link and viewing the Process editor tour.

1. [Exploring the product interface](#)
Use these methods to get to know the WebSphere Business Modeler interface.
2. [Examining the editors](#)
WebSphere Business Modeler contains a variety of editors to help you create your business models.
3. [Examining models](#)
Become more familiar with the features and components of WebSphere Business Modeler by examining aspects of the samples that ship with the product.
4. [Modeling your own process](#)
In just a few steps, you can start modeling your own processes.

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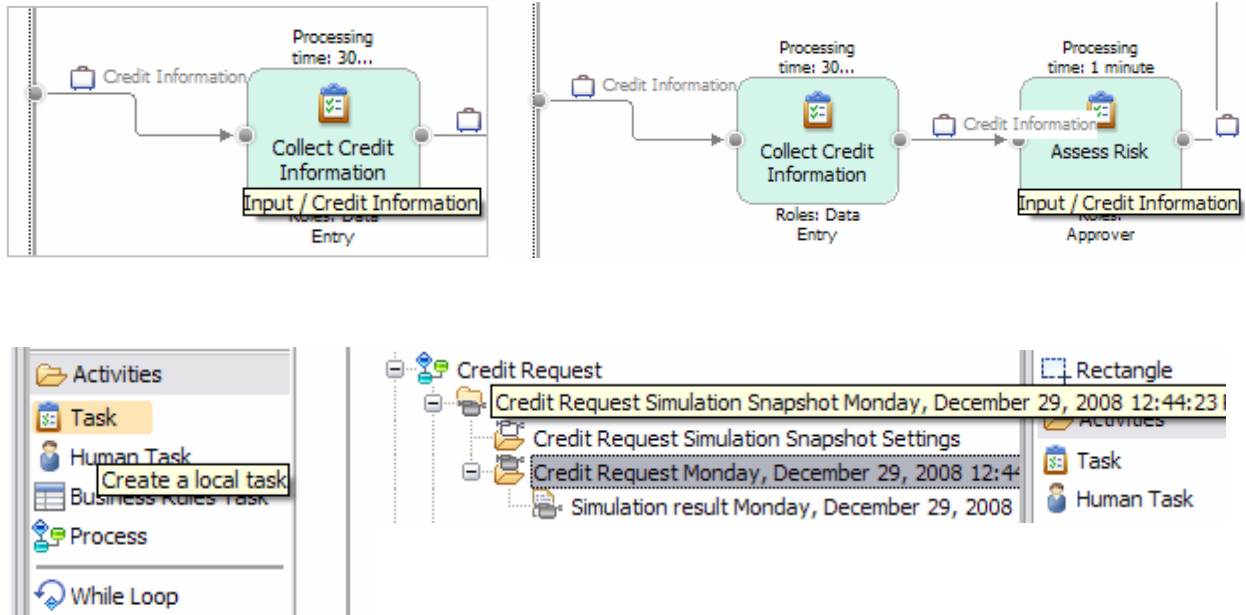
Figure 2-29. Modeler help: tutorials

WB284 / VB2841.0

Notes:

Hover help

- Hovering cursor over an element displays associated information



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Figure 2-30. Hover help

WB284 / VB2841.0

Notes:

References

- IBM Redbooks: www.redbooks.ibm.com
 - *Best Practices for Using WebSphere Business Modeler and Monitor* (REDP-4159)
 - *Business Process Management: Modeling through Monitoring Using WebSphere V6.0.2 Products* (SG24-7148)
 - Downloadable soft copies are free of charge
- developerWorks: www.ibm.com/developerworks
- Certification exam: www.ibm.com/certify
 - IBM Certified Business Process Analyst - WebSphere Business Modeler Advanced
- Additional materials
 - Sample projects, industry samples, lab workspaces, and more
 - See course summary unit

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Figure 2-31. References

WB284 / VB2841.0

Notes:

Checkpoint

1. What are the four panes in Modeler when using the apply four-pane layout?

2. What is the difference between a workspace and a project?

3. Name the types of analysis you can perform using Modeler.

4. Name some of the basic elements you use in your process model.

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Figure 2-32. Checkpoint

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Notes:

Write your answers here:

- 1.
- 2.
- 3.
- 4.

Unit summary

Having completed this unit, you should be able to:

- Explain the value of WebSphere Business Modeler
- Describe various features of WebSphere Business Modeler
- Describe the interactive process design
- Define a project and workspaces
- Navigate the user interface
- Use the WebSphere Business Modeler help function

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Figure 2-33. Unit summary

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Notes:

Checkpoint solutions

1. What are the four panes in Modeler when using the apply four-pane layout?
Project Tree, outline, editor, and attributes view
2. What is the difference between a workspace and a project?
A workspace is a folder in which WebSphere Business Modeler stores model information and user preferences on the hard drive.
A project is the top-level container that holds all of the catalogs, processes, and modeling elements related to a particular work effort.
3. Name the types of analysis you can perform using Modeler.
Visual analysis, static analysis, and dynamic analysis
4. Name some of the basic elements you use in your process model.
Process, service, task, decision, business item, and repository

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Figure 2-34. Checkpoint solutions

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Notes:

Exercise overview

In this exercise, you will:

- Create a simple process called Fill Staff Request

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Figure 2-35. Exercise overview

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Notes:

How to use the course exercise instructions

- Each exercise is divided into sections with a series of steps and substeps. The step represents an action to be performed. If required, the substeps provide guidance on completing the action.

 1. Create a user account named WBIADMIN.

 a. Right-click **My Computer** and choose **Manage** from the shortcut menu.

 b. Expand **Local Users and Groups**.

- In this example, the creation of a new user account is the action to be performed. The substeps underneath provide specific guidance on how to create a new user account in Windows. Words highlighted in bold represent menu items, field names, and so forth.
- Each step and substep is preceded by an underscore. You are encouraged to use these markers to track your progress. As you complete a step, place an x or a checkmark on the underscore to indicate it is completed. Tracking your progress in this manner enables you to stay focused in case of interruptions during a lengthy exercise.

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Figure 2-36. How to use the course exercise instructions

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Notes:

Unit 3. Creating a business process diagram

What this unit is about

This unit describes the creating a business process diagram.

What you should be able to do

After completing this unit, you should be able to:

- Describe the modeling modes
- Create a process model
- Use the process editor
- Create a process catalog
- Describe the process elements
- Explain the relationship between local and global activities

How you will check your progress

- Checkpoint
- Lab exercises

References

None

Unit objectives

After completing this unit, you should be able to:

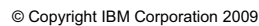
- Describe the modeling modes
- Create a process model
- Use the process editor
- Create a process catalog
- Describe the process elements
- Explain the relationship between local and global activities

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Figure 3-1. Unit objectives

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Notes:



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Notes:

Modeling modes in WebSphere Business Modeler

- Business modeling modes for process mapping:
 - Basic business modeling
 - Advanced business modeling
- Business modeling modes that apply validation rules:
 - WebSphere Business Integration Server Foundation
 - WebSphere MQ Workflow
 - WebSphere Process Server
 - FileNet Business Process Manager
 - WebSphere Business Services Fabric
- When switching modes, the following changes occur:
 - Some options are not available
 - A previously valid model may no longer be valid because of additional validation rules
- No information is lost when switching modes



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Figure 3-3. Modeling modes in WebSphere Business Modeler

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Notes:

Modeler provides several business modeling modes that filter or reveal information on the model elements or provide validation to support exporting models in a specific format. The mode you choose determines the level of detail you see in diagrams, dialogs, and wizards.

In general, you will use a single mode for all or most of the work you do. If you occasionally want to specify a different level of detail for a model or some aspect within it, you can switch to another business modeling mode.

Business modeling modes for process mapping



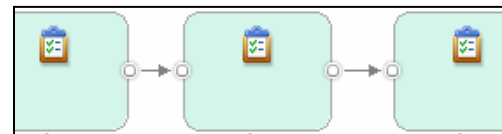
Basic (default)

- Focuses on creating and displaying sequence flows
- Filters out fine-grained technical details of process and data modeling
- Seven attribute tabs



Advanced

- Facilitates the work of technical personnel who prepare models that will be used as the basis for software applications
- Eleven attribute tabs



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Figure 3-4. Business modeling modes for process mapping

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Notes:

Basic (the default). This mode focuses on creating and displaying sequence flows and filters low-level technical details of process and data modeling.

Advanced. This mode gives the more technically focused user the opportunity to specify and view additional details of process and data models, and facilitates the work of technically experienced personnel who prepare models that will be used as the basis for software applications.

Business modeling modes for validation



WebSphere Business Integration Server Foundation

- Applies validation rules to support export of models to Application Developer Integration Edition



WebSphere MQ Workflow

- Applies validation rules to support export of model in FlowMark Definition Language (FDL) for IBM WebSphere MQ Workflow



WebSphere Process Server

- Applies validation rules to support export of model to WebSphere Integration Developer and subsequently deployment on runtime WebSphere Process Server



FileNet Business Process Manager

- Applies validation rules to support export of model to FileNet P8 platform
- The model can then be refined and deployed on FileNet P8 Process Engine



WebSphere Business Services Fabric

- Applies validation rules to support export of model to FileNet P8 platform
- The model can then be refined and deployed on FileNet P8 Process Engine

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Figure 3-5. Business modeling modes for validation

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Notes:

WebSphere Business Integration Server Foundation. This mode applies a set of validation rules to the Advanced mode to support exporting models to files in three formats: BPEL (Business Process Execution Language), WSDL (Web Services Description Language), and XSD (XML Schema Definition). The exported files are imported into WebSphere Studio Application Developer Integration Edition, where an implementation of the process can be created and then subsequently deployed onto a runtime application server. The validation rules constrain the model to only elements and concepts supported by WebSphere Business Integration Server Foundation.

WebSphere MQ Workflow. This mode applies a set of validation rules to the Advanced mode to support exporting the model in FDL, which can then be imported into IBM WebSphere MQ Workflow Buildtime 3.5. The validation rules constrain the model to only elements and concepts supported by WebSphere MQ Workflow.

WebSphere Process Server. This mode applies a set of validation rules to the Advanced mode to support exporting the model into SCA artifacts, BPEL, WSDL, and XSD files. The exported files are imported into WebSphere Integration Developer, where an

implementation of the process can be created and then subsequently deployed onto a runtime WebSphere Process Server server. The validation rules constrain the model to only elements and concepts supported by WebSphere Process Server.

FileNet Business Process Manager. This mode applies a set of validation rules to the Advanced mode to support a model that can be imported into the FileNet P8 platform. The model can be refined and then deployed on a FileNet P8 Process Engine. ***Instructor notes:***

WebSphere Business Services Fabric. This mode applies a set of validation rules to the Advanced mode to support exporting the model into SCA artifacts, BPEL, WSDL, XSD, and DAC files. The exported files are imported into WebSphere Integration Developer with WebSphere Business Services Fabric, where an implementation of the process can be created and then subsequently deployed. The validation rules enforce the same model constraints that exist when operating under the WebSphere Process Server mode.

Primary modeling elements used in Modeler

Category	Modeler element	Description
Activity Represents the work being performed	Task	Basic unit of work
	Process	Sequence of activities
	Service	Process external to the organization
Data Represents storage area and data map	Repository	Location where business items are stored
	Map	Transforms data from one structure to another
Gateway Determines the process flow	Simple decision	Routes inputs to one of two paths
	Multiple-choice decision	Routes inputs to one of several paths
	Fork	Splits a path into two or more parallel paths
	Merge	Combines two or more paths after an exclusive decision
	Join	Combines two or more parallel paths
	Connection	Links two elements to represent the flow
Event Determines the control flow	Start	Marks the beginning of a process not initiated by another process
	Terminate (Required)	Marks the termination of a process
	End	Marks the end of a path in a process

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Figure 3-6. Primary modeling elements used in Modeler

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Notes:

Activity: task



- Basic unit of work that performs some function in a process
- Lowest level of work that can be shown visually in a process model
- Two types
 - Local: Specific to a process, created on the palette
 - Global: Reusable within a workspace; created in the Project Tree
- Details are described in the Attributes view or global element editor

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Figure 3-7. Activity: task

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Notes:

Tasks are the basic building blocks representing activities in a process model. Each task performs some function. Visually, a task represents the lowest level of work shown in the process.

Tasks are atomic activities, in contrast to processes, which can be decomposed into another flow. For example, an Order Entry process might be made up of three tasks: Retrieve Customer Information, Enter Ordered Items, and Check Item Availability.

When to use global versus local tasks

- If the activity will be performed within many processes and its specifications are unlikely to change, create a **global** task.
 - Otherwise, create a **local** task.
- A **global** task will always have the same attributes.
 - If a task needs to behave differently or be performed by different roles in different processes, create different **local** tasks instead.
- WebSphere Business Modeler provides the ability to convert local elements to global status.

Global task	Local task
Top-level task created in Project Tree view within a process catalog	Owned by a process and can only be used by elements within that process
Can be used by multiple processes within the project	Exists only within a process, not visible outside the process
Must be opened from Project Tree view for editing	Edited using Attributes view

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Figure 3-8. When to use global versus local tasks

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Notes:

Tasks that participate in a process flow can be local to the parent process or they can be references to top-level global tasks. A local task is owned by a process and can only be used by elements within that process. The task exists only while the process exists. A global task, on the other hand, is a top-level task that you create in the Project Tree view within a process catalog. It can be used by multiple processes within the project. In the process diagram, a global task has a double line border.

Local tasks are edited using the Attributes view. Global tasks must be opened from the Project Tree view for editing. You can drag a global task to a diagram and then create connections between it and other processes or tasks in the diagram, but the connections must either be compatible with the previously-created inputs and outputs, or they must be connections without data. Otherwise, you cannot make changes in the Attributes view, but must return to the specification of the global task to make the changes. (For an example of a global task, see the ABC Project sample. It contains a global task, Input Customer Order, that appears in the Customer Order Handling process.)

Deciding whether to create a local task or a global task depends on the nature of the activity you are modeling. If you can determine that the activity will be performed within many processes and its specifications are unlikely to change over time, create the activity as a global task. Otherwise, create the activity as a local task.

Remember: A global task will always have the same attributes, including the roles or resources that perform it and the location where it is performed. If a task needs to behave differently or be performed by different roles in different processes, create different local tasks instead.

While the choice between global and local tasks can be made prior to creating your model, WebSphere Business Modeler provides the ability to convert local elements to global status, allowing flexibility in terms of model evolution. You might want to define tasks as local initially and determine their global impact after your modeling is fully underway. Note, however, that a global task carries over all the depending elements that are defined for it, including resources, organizations and other operational assignments; a task that in one context is completed by one resource or organization might be different in another context. By definition, it would not be the same global task. In that case, you would create two local tasks.

Remember that you can only edit a global task using the task editor. If you make changes to the global task that affect its operation within the process (for example, if you add or delete any inputs or outputs), the processes that are using the task will contain errors until you manually update the instance of the task within the other processes. To do this, select the global task in the other process diagrams, right-click, and select **Update Global Element**. If you change a global task in a way that does not affect the processes that are using it (for example, if you change the name of the task) the change will take place in the processes automatically.

Global versus local task attributes

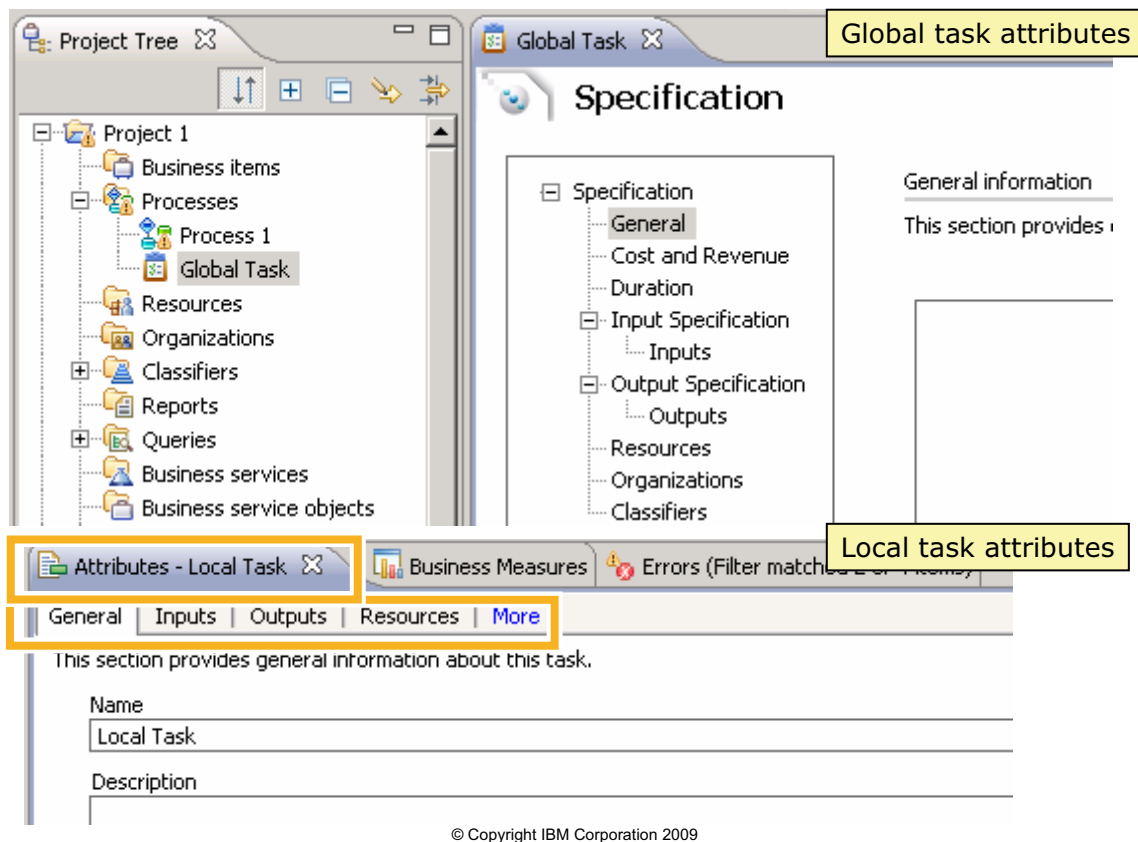


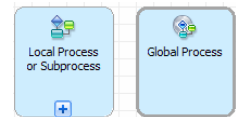
Figure 3-9. Global versus local task attributes

WB284 / VB2841.0

Notes:

Note that the categories of attributes are the same (General, Cost and Revenue, Duration, Inputs, Outputs, Resources, Organizations, Classifiers), regardless of whether the task is global or local.

Activity: process



- Processes are more complex than tasks
 - Represented as a sequence of activities that are linked by flows of control and data
 - Activities can be other processes as well as tasks and other elements that control flow
- Decisions in a process determine the way a process is executed
 - Each possible path of execution is known as a case
- Two types: Local and global
- Described in the Attributes view
- Associated cost, revenue, and duration can specified at the process level
 - Task level details may be unknown or too detailed in some analyses

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Figure 3-10. Activity: process

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Notes:

Processes in WebSphere Business Modeler are representations of real-time business processes. Processes are composed of individual steps or activities, the conditions that dictate when these steps and activities occur, and the resources required for the performance or execution of the process.

Process specifications

The definition of a process has the following parts:

- The process diagram, which is a visual representation of the process flow
- The specification, which defines the inputs and outputs of the process. You can also define the costs and duration, as well as the organization unit that is responsible for this process. Note that there is no relationship implied between the responsible organization unit and the required resources to perform the tasks within the process.

Global processes must be opened from the Project Tree view for editing. You can drag a global process to a diagram and then create connections between it and other processes or tasks in the diagram, but the connections must either be compatible with the

previously-created inputs and outputs, or they must be connections without data. Otherwise, you cannot make changes in the Attributes view, but must return to the specification of the global process to make the changes.

When to use global versus local processes

- Creating **global** processes should be the general rule.
 - If the process is so unique that it is unlikely to be reused in any other process or is needed for functional structuring only, use a **local** process.
- Model at a high level of detail and then iteratively add details to the model.
 - Do not get sidetracked by modeling a nested process before completing the parent process.
 - Create placeholders for the processes first, and then work on the details of each process after the parent process is complete.
- WebSphere Business Modeler provides the ability to convert local elements to global status.

Global process	Local process
Enables a collection of activities to be reused in multiple processes across functional areas	Logical collection of activities that only exists within its parent process
Displayed in Project Tree	Displayed only within process diagram of parent process

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Figure 3-11. When to use global versus local processes

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Notes:

Global processes are displayed in the Project Tree view. Local processes (or *subprocesses*) are displayed only within the process diagram of their parent process. In the process diagram, a global process has a double line border.

A local process is a logical collection of activities that only exists within its parent process. A local process is unique to a process, and is only used within that process. A global process, on the other hand, enables a collection of activities to be reused in multiple processes across functional areas. For example, an imaging process that converts paper documents into electronic form can appear in any number of processes, whenever a paper document is required in electronic format. Because this activity will be performed in multiple processes, it can be modeled as a global process and reused indefinitely.

Creating global processes should be the general rule, unless the process is so unique that it is unlikely to be reused in any other process or is needed for functional structuring only; in which case, a local process should be used. Process modeling is iterative and encompasses many levels of detail. A good strategy is to model at a high level of detail and then iteratively add the details to the model. That is, do not get sidetracked by modeling a

nested process before completing the parent process. Create placeholders for the processes first, and then work on the details of each process after the parent process is complete.

When to use processes versus tasks

- Both processes and tasks represent activities that are performed in a business.
- Processes are more complex than tasks and can be represented as a sequence of activities that are linked by flows of control and data.
- Tasks are atomic activities that cannot be divided into smaller actions that can be represented in the model.
- If details of the activity are critical for communication and analysis, create a **process** so that the intent of the process can be precisely documented and the relevant data can be analyzed.

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Figure 3-12. When to use processes versus tasks

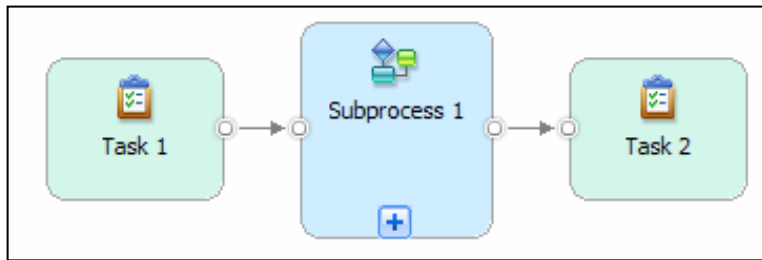
WB284 / VB2841.0

Notes:

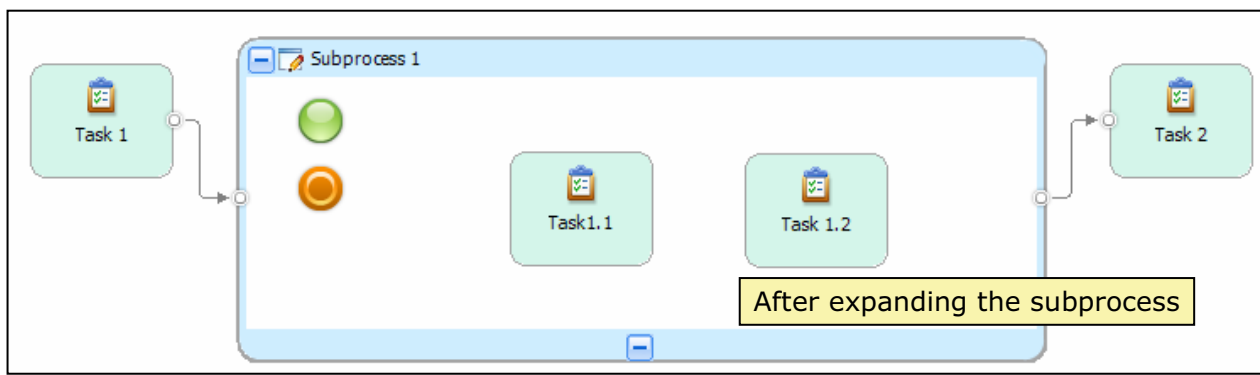
Both processes and tasks represent activities that are performed in a business. Processes are more complex than tasks, however, and can be represented as a sequence of activities that are linked by flows of control and data. This sequence as a whole is known as a process flow. By contrast, tasks are atomic activities that cannot be divided into smaller actions. For example, in the ABC Project sample, Create New Customer Account is a process made up of four tasks: Create Customer Record, Ask Customer Security Questions, and Send Email To Customer Verifying Account And Security Information.

To determine whether an activity should be modeled as a process versus a task, determine whether the details of the activity are critical for communication and analysis. If they are, then the activity should be modeled as a process so that the intent of the process can be precisely documented and the relevant data (cost and duration) can be analyzed.

Expand local subprocesses in place



- Visualize subprocess flow within the context of the entire process
- Viewing in a separate editor also still an option



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Figure 3-13. Expand local sub-processes in place

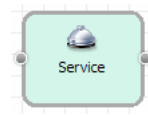
WB284 / VB2841.0

Notes:

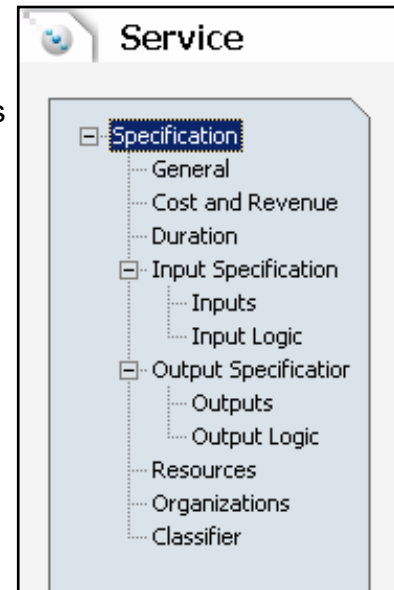
- You can expand a local subprocess within a process diagram to view and edit the details of the subprocess all at once in the editor. View contents of subprocess without switching to another editor or expand all in simulation snapshot.
 - Recall in previous version, to view complete end to end and all activities in subprocesses, needed to create simulation snapshot and expand all.
- To expand or collapse a subprocess, you must be working in the process diagram for the parent process where the subprocess is displayed.
 - Complete the following steps:
 - Click the plus (+) sign on the subprocess to expand the subprocess. The process diagram for the subprocess opens.
 - To close the subprocess, perform one of the following actions:
 - Right-click anywhere in the diagram of the subprocess and then click **Return to Parent Process** to return to the parent process.

- Right-click the subprocess and then click **Return to Root Process** to return to the diagram for the top-level process.
- Global processes can not be edited in this manner

Activity: service



- Services are external processes executed outside the organization
 - Can be used within or by the organization's processes
- Services are similar to processes, but the internal activities are unknown
 - Treated as a “black box,” outside the control of the organization
 - Example: Credit check
- Essential to modeling the realities of business-to-business integration
 - Represent organizations like credit bureaus, payroll companies, or shipping companies
- Can only be created in Project Tree
- Described in the global element editor
- Associated cost, revenue, and duration are specified for the whole service
 - Task level details are unknown (“black box”)



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Figure 3-14. Activity: service

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Notes:

Services are external processes outside the organization that can be used within the organization's processes. Services either provide input to the organization or receive output from the organization. Services have well-defined inputs and outputs, but their internal processes are unknown to the organization and cannot be changed.

Examples of services are those that are provided by service organizations such as travel agencies, collection agencies, payroll services, security companies, and transportation companies. Each of these service organizations provide specific services to client organizations.

Although services are outside the control of the organization, they are essential to modeling the realities of business-to-business integration. For example, a bank may use the services of a credit bureau as part of a loan application process. You can represent the credit checking as a service when modeling that process. (This type of service is modeled in the Customer Order Handling process of the ABC Project sample.)

When to use services versus resources

Usually a service represents an external process, or perhaps an automated system, that has some logic within it and plays a part in the process flow. Services are commodities and easily integrated with existing company processes. Resources, on the other hand, are used to perform tasks and have no logic of their own.

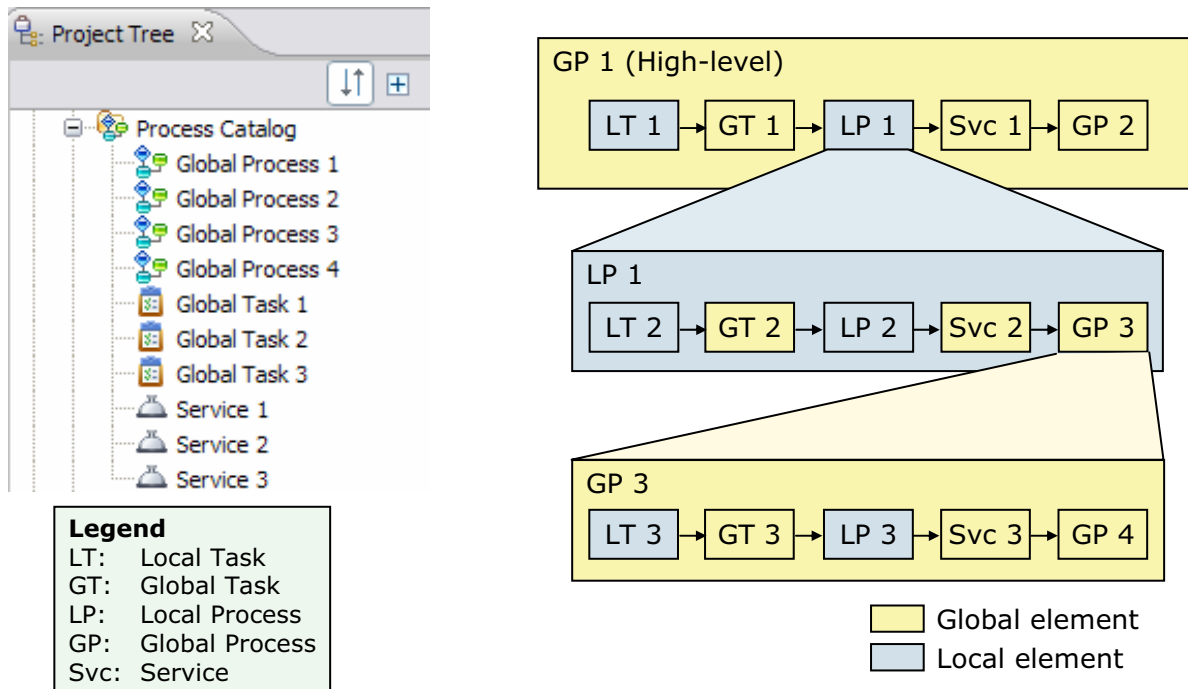
Sometimes it is simply a matter of style and what you want the model to show. For example, a computer application can be modeled as a resource, because it is used to perform a task. Another computer application can be modeled as a service, because it encapsulates logic and plays a part in the process flow.

Service specifications

All services are global and can be used by multiple processes within a project. Services are created in the process catalogs and have the same attributes as tasks: inputs, outputs, costs, and duration, as well as the organization unit that is responsible for the service and the resources or roles that are required to perform the service. The resources do not need to be associated with the organization unit that is responsible for the completion of the service; they can come from any organization unit.

Relationship between local and global activities

- Every global or local process can reuse other global elements along with its own local elements
- Only global elements are listed in the Project Tree



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Figure 3-15. Relationship between local and global activities

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Notes:

A process may contain other processes. Each process, task, repository, and service used within a parent process may be a global element that has already been created and is displayed in the Project Tree view, or (except for services) it may be a local element that exists only in the parent process.

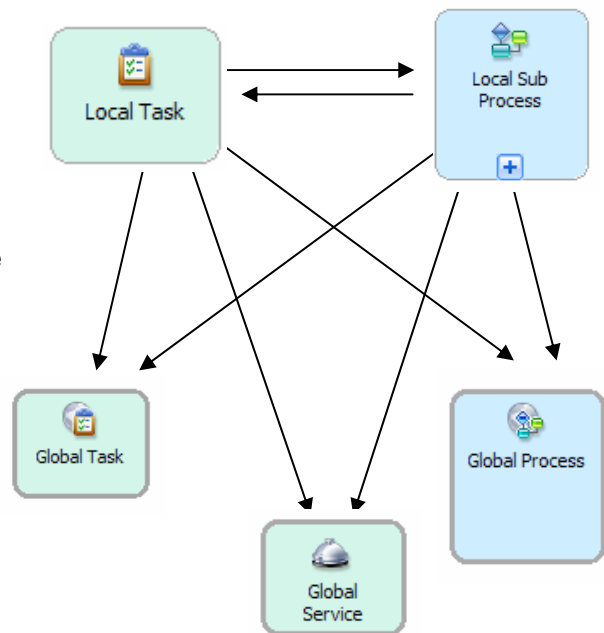
This diagram shows several nested processes. Global elements are color-coded yellow, and local elements are in blue. One local process (LP 1) and one global process (GP 3) have been expanded, and their corresponding contents are displayed.

Note that only the global elements are listed in the process catalog on the left. Even if the elements are nested deep in a subprocess (either global or local), there is no location-specific hierarchical structure in the Project Tree. These elements are merely listed alphabetically within each category. Global elements can be reused anywhere, and there is no limit to how many times they can be reused.

Tip: For global elements, you can view where the elements have been used by right-clicking the element in the Project Tree and selecting **Used by**.

Converting elements

- Elements can be changed during the documentation or design process
- Converting a local task to a local process
 - Justification: The task actually contains several tasks
- Converting a local process to a local task
 - Justification: The process is really at the lowest level that can be displayed
- Converting local tasks and processes to global tasks, processes, or services
 - Activities are reusable or will require specific analysis
 - New global elements will appear in Project Tree
 - All existing attributes and connections are maintained
- Some information is lost when converting elements



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Figure 3-16. Converting elements

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Notes:

As indicated by the one-way arrows in the diagram, once these local elements have been converted to global elements, they can not be converted back to local elements. The only conversion you can “undo” is between a local task and a local process.

It is advised that you do **not** use the Undo option from the Edit menu in an attempt to undo your conversion. Although it may look like you have successfully removed the conversion from the Project Tree, the name of the new global element is still stored in the project workspace. This may pose problems in the future when you attempt to create new elements with that same name.

When you convert a task or process to another element, some information is lost.

Conversion from any local element to any global element

The following shows the information that is lost when you convert a local task or process to a global task, process, or service:

- Input or output without associated data

- Inputs and outputs without associated data are preserved in the diagram. However, these inputs and outputs are not found in the global element within the Project Tree view.
- Input from or output to a repository
 - Repository inputs and outputs are preserved in the diagram. However, these inputs and outputs are converted to inputs and outputs with associated data in the global element within the Project Tree view.
- Input with “Constant” selected as input source
 - Inputs with a constant source are preserved in the diagram. However, these inputs are converted to inputs with associated data in the global element within the Project Tree view.

Conversion from a local process to a global process

The following shows the information that is lost when you convert a local process to a global process:

- Technical specification information
 - Any information added in the Technical Attributes view in WebSphere Process Server mode is lost.

Conversion from a local process to a task or service

The following shows the information that is lost when you convert a local process to a local task, global task, or service:

- Contents of process
 - The contents of the process are lost.
- Technical specification information
 - Any information added in the Technical Attributes view in WebSphere Process Server mode is lost.

Conversion from a task to a process

The following shows the information that is lost when you convert a global or local task to a global or local process:

- Resource requirement
 - Resource requirements are lost
- Role requirement
 - Role requirements are lost.
- Resource wait time
 - Resource wait time specification is lost.
- Wait-time cost

- Wait-time cost specification is lost.
- Technical specification information
 - Some of the information added in the Technical Attributes view in WebSphere Process Server mode is lost, specifically the information related to BPEL attributes, component attributes, and implementation attributes.

Conversion from a local task to a global task or service

The following shows the information that is lost when you convert a local task to a global task or service:

- Technical specification information
 - Some of the information added in the Technical Attributes view in WebSphere Process Server mode is lost, specifically the information related to BPEL attributes.

Move activities into sub-process

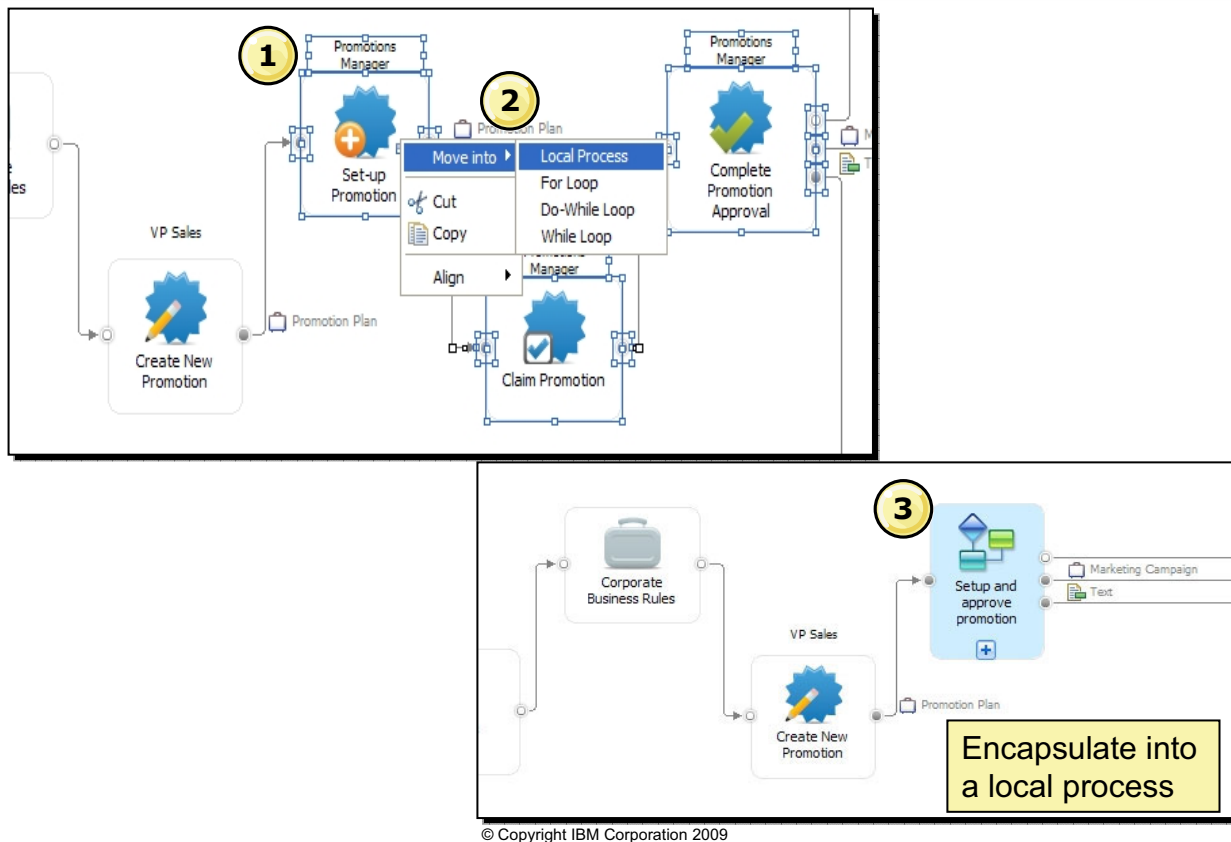


Figure 3-17. Move activities into sub-process

WB284 / VB2841.0

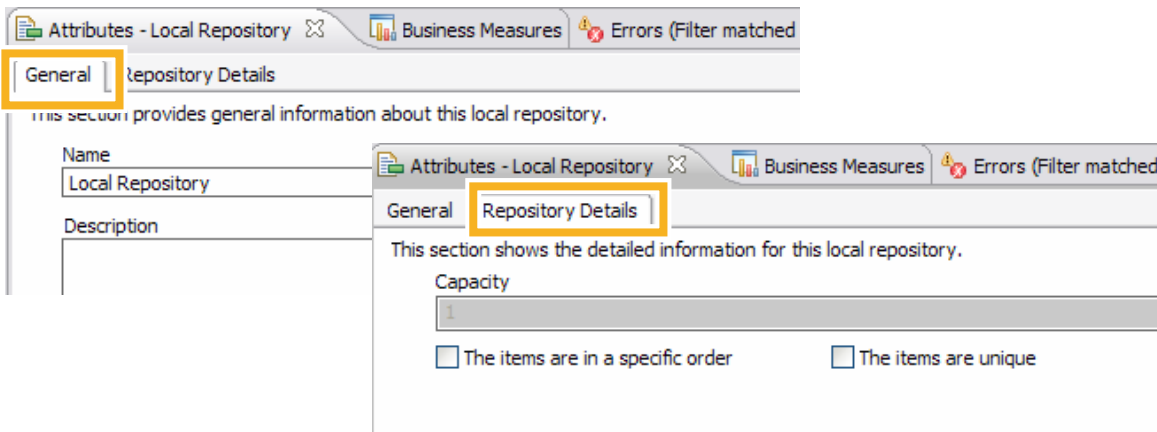
Notes:

1. Select a group of activities.
2. Right-click to encapsulate into a local process, a global process, or a loop.
3. Once the new local subprocess or loop is displayed, there is a prompt to enter the name for new process.

Data: repository



- Repositories represent storage areas for business items (data)
 - Business items are either taken from or placed in a repository
- A repository can only hold a single type of business item
 - Multiple business items must be combined into a new business item before they can be stored in a repository
- Two types: Local and global
- Described in the Attributes view or global element editor



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Figure 3-18. Data: repository

WB284 / VB2841.0

Notes:

Repositories are storage areas for the information that is created in a business process. Every repository has a name and an associated type. Usually the name of a repository is the same as the name of the business items it contains. For example, a repository for invoices is called Invoices.

Use repositories when you have several activities (tasks, processes, or services within a process) that need to access or share the same information. Rather than passing information along flows from one activity to another, you can instead place the information in a common place which several activities can then access.

Repositories are useful in cases like the following:

- You have tasks which are not directly connected, but which need to access the same information. If you store the information in a repository, the unconnected tasks can share information. Otherwise, you would have to create flows between these tasks, creating a model that does not correctly reflect your desired behavior.

- You have a sequence of tasks, some of which require certain information, and others of which do not. If you store the information in a repository, the tasks that need it can get it at any time. Otherwise, you would have to pass the information along the process flow and tasks that do not require the information have to get it, merely so they can pass it on to downstream tasks.

Repository specifications

A repository can only hold a single type of object (such as invoices, customer records, or problem reports). By default, its capacity is unlimited, but you can specify an upper limit; for instance, if the process can handle only a certain number of items a day. If you only ever want one item in your repository at a time, for example if you are using it as a counter, you should change the capacity to 1.

You can specify whether the objects stored in the repository must be kept in a particular order. For example, you might want to ensure that customer requests are fulfilled in the order that they are received. You can also specify that objects in the repository must be unique. For example, you might want to ensure that there are no duplicate invoices. If you have specified that items must be unique, and you try to store an item in the repository that is the same as another item already stored there, the second item is ignored.

When to use global versus local repositories

- Global repository provides the mechanism to model the sharing of information across processes.
 - Use global repositories whenever information is to be shared across disparate processes.
- With local repositories, the information does not persist outside the boundaries of the parent process.
- Unlike global processes and tasks, where only the definition is shared, the repository instance is shared at run time.

Global repository	Local repository
Top-level repository created in the Project Tree view	Owned by a process and can only be used by elements within that process
Can be used by multiple processes	Exists only while the process exists

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Figure 3-19. When to use global versus local repositories

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Notes:

A global repository is a top-level repository that you create in the Project Tree view. It can be used by multiple processes. Many business processes are not directly connected, but do share common information, and the global repository provides the mechanism to model the sharing of information across processes. You can also specify default values for a repository if you want to indicate that a repository contains information before the beginning of a process. For example, you might have a global repository where customer information is always available.

A local repository is owned by a process and can only be used by elements within that process. The repository exists only while the process exists. Business items are created during the process, stored in the repository, and used in another part of the process.

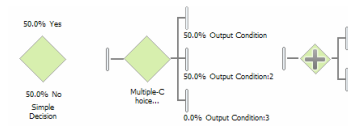
Use global repositories whenever information is to be shared across disparate processes. With local repositories, the information does not persist outside the boundaries of the parent process.

Unlike global processes and tasks, where only the definition is shared, the repository instance is shared at run time. As an example, consider two processes, Customer Order

and Ship to Customer, both of which reference the same global repository. If the Customer Order process places a particular business item instance in the repository at run time, then the Ship to Customer process can retrieve it from the repository because they are in fact calling the same repository instance.

Local repositories are required for storing information required in loop conditions, since the Expression Builder used for setting up a loop condition cannot access a global repository. You must create the local repository in the parent process. A local process (or loop) can reference a local repository contained in the parent process, but a parent process cannot reference a local repository contained in a local process or loop.

Gateways: decision and fork



- Decisions are flow control constructs rather than activities like tasks or processes
 - No costs or duration
 - Used to show alternate paths from a preceding activity
 - Named in the form of a question: "Type of order?"
- Simple decision
 - Has one incoming branch with one input and two exclusive outgoing branches, each with one output
- Multiple-choice decision
 - Has one incoming branch and multiple outgoing branches
 - Incoming branch allows more than one input
 - Each outgoing branch has an associated condition, can be inclusive
 - Output branches can be labeled
- Fork
 - Splits the process flow into parallel paths
 - Enables two or more paths to be performed independently of each other
 - A fork makes copies of its inputs and forwards them along each of the parallel paths
- Branching and splitting conditions are specified in the Attributes view

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Figure 3-20. Gateways: decision and fork

WB284 / VB2841.0

Notes:

Decisions

A decision routes inputs to one of several alternative outgoing paths. You can think of a decision as a question that determines the exact set of activities to perform during the execution of a process.

Questions might include:

- "What type of order?"
- "How will the order be shipped?"
- "How will the customer pay?"

Decisions are flow control constructs rather than activities like tasks or processes. They have no costs or duration, and are used to show alternate paths from a preceding activity.

There are two types of decisions: simple decisions and multiple-choice decisions.

Simple decision

A simple decision has one incoming branch with one input and two outgoing branches with one output each. When the process is running, the process flow takes one outgoing branch if a certain condition is true, and the other branch if the same condition is false. The decision selects the outcome based on the incoming data. In the following example, a decision has been added to determine if a customer is pre-qualified. If the customer is pre-qualified, the customer record business item passes to a task called Input Customer Order. If the customer is not pre-qualified, the flow ends. This example is designed for process modeling only and might not simulate.

You can add a probability to each branch of a decision to indicate the probability of that branch running at any given time. The probability for each branch is set to 50% when the first two branches are created. The probability of an additional branch depends on the probability that has not been allocated. For example, if you specify 50% and 30% for the first two branches, and you add another branch, the new branch will have 20% as the initial value. If you reorder the output branches, the probabilities stay with the branch to which you assigned them. If you remove a branch, however, the remaining probabilities are not changed. When you add or remove branches, be sure to check the probabilities.

The branch condition consists of the following:

- Name or label (displayed on the diagram)
- Description or natural-language expression
- Formal expression

If you simulate your process, you can choose to evaluate the decision based on the output probabilities or based on the expressions you defined.

In the diagram, probabilities are displayed to a precision of one decimal place (for example, 45.5%). When the value that you specify has more than one decimal place (for example, 45.484%), the trailing digits are rounded off. To view the full value without rounding, you can either hover your mouse over the probability in the diagram, or you can select the decision and see its values in the Attributes view.

If you specify an expression for one of the branches in a simple decision, WebSphere Business Modeler attempts to generate the expression for the other branch for you. This works only for simple expressions in a simple decision. The following are examples:

- You enter “`x is equal to y`” on one branch.
WebSphere Business Modeler generates “`x is not equal to y`” on the other branch.
- You enter “`x is greater than y`” on one branch.
WebSphere Business Modeler generates “`not(x is greater than y)`” on the other branch.

Multiple-choice decision

A multiple-choice decision has one incoming branch and multiple outgoing branches. The incoming branch allows more than one input. Each outgoing branch has an associated

condition (that is, an expression that evaluates to either true or false). This condition determines which branch will be selected when the process runs.

A multiple-choice decision can be exclusive (only the first path whose condition is true will be taken) or inclusive (all paths whose conditions are true will be taken). An example of an exclusive decision is “Customers can pay using either cash or credit card, but not both.” An example of an inclusive decision is “Customers can pay using cash, credit card, or a combination of cash and credit card.”

For inputs associated with business items (only), you can also specify the minimum and maximum number of values that are accepted as input by the incoming branch. By default, the minimum number of values is 1 and the maximum number of values is 1, which means that the decision accepts exactly 1 value as input. Each input with data corresponds to an output on each outgoing branch. If you change the minimum or maximum numbers on the incoming branch, the corresponding numbers for the outputs on the outgoing branches automatically change to match the inputs.

The incoming and outgoing branches are visible in all modes, but the inputs and outputs within the branches are only visible in the Intermediate and Advanced modes.

Fork

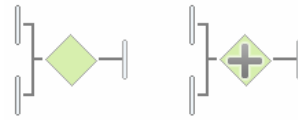
A fork splits the process flow into two or more concurrent paths, enabling two or more tasks to be performed in parallel. A fork makes copies of its inputs and forwards them along each of the paths. Forks, like merges and joins, are special elements designed to visually show the control of the flow.

A fork has one incoming branch and multiple outgoing branches. By using a fork, you can replicate the input into two or more outputs.

Use a fork and then a join when you want the output of a task to trigger multiple tasks that can execute independently of each other.

The incoming and outgoing branches are visible in all modes, but the inputs and outputs within the branches are only visible in the Intermediate and Advanced modes.

For inputs associated with business items (only), you can specify the minimum and maximum number of values that are accepted as input by the incoming branch of a fork. By default, the minimum number of values is 1 and the maximum number of values is 1, which means that the fork accepts exactly 1 value as input. Each input corresponds to an output on each outgoing branch. If you change the minimum or maximum numbers on the incoming branch, the corresponding numbers for the outputs on the outgoing branches automatically change to match the inputs.



Gateways: merge and join

- Merges and joins combine multiple processing paths into a single flow
- Merge
 - Combines two or more alternative paths back into a single flow
 - Usually used after exclusive decisions
 - Only one outgoing branch of an exclusive decision is ever taken
 - A merge runs whenever one of its incoming branches is satisfied
- Join
 - Combines two or more parallel flows back into a single flow
 - Synchronizes the paths, by waiting for each input to arrive
 - Only permits the output to continue after all inputs have arrived
 - Usually used after forks
 - All outgoing branches of a fork are taken
 - A join runs only when all of its incoming branches are satisfied
- Merging and joining conditions are specified in the Attributes view

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Figure 3-21. Gateways: merge and join

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Notes:

Merges and joins combine multiple processing paths, recombining alternative flows back into a single flow. Joins also synchronize the flows, by combining two or more parallel paths that must all complete before they continue along a single path. Merges and joins are elements that are specially designed to visually show the control of the flow. You cannot use these visual constructs to create or synchronize flows with different business items.

Merge

Merges combine two or more alternative paths, allowing them to arrive at the same task. When the process diverges into different paths, you can use a merge to recombine them into a single common path. Merges and exclusive decisions work well together. Only one outgoing branch of an exclusive decision is ever taken, and a merge runs whenever one of its incoming branches is satisfied.

If you create a model in which more than one path arrives at the merge, be aware that the common task may be performed multiple times.

The incoming and outgoing branches are visible in all modes, but the inputs and outputs within the branches are only visible in the Intermediate and Advanced modes.

For inputs associated with business items (only), you can specify the minimum and maximum numbers of values that are accepted as input by an incoming branch in a merge. By default, the minimum number of values is 1 and the maximum number of values is 1, which means that the branch accepts exactly 1 value as input. If you change the minimum or maximum numbers on an incoming branch, the corresponding numbers for the output on the outgoing branch automatically change as well. For example, if you change one of the incoming branches to have a minimum of 2 values and a maximum of 3 values for the input, and leave the other incoming branch with a minimum of 1 value and a maximum of 1 value, the outgoing branch changes to allow a minimum of 1 value and a maximum of 3 values for the output. If you reorder the input branches of the merge, the values stay with the branch to which you assigned them.

Since a merge runs whenever one of its incoming branches is satisfied, and the inputs on that single branch then flow to the outputs on the outgoing branch, the minimum and maximum values on the outgoing branch of a merge must reflect all possibilities in which any one incoming branch is satisfied.

The incoming and outgoing branches are visible in all modes, but the inputs and outputs within the branches are only visible in the Intermediate and Advanced modes.

Join

Joins combine two or more parallel paths that must all complete before continuing along a single path to a common task. A join synchronizes the paths, by waiting for input to arrive at each of its incoming branches and only then permitting the input to travel on. Joins and forks work well together. All outgoing branches of a fork are taken, and a join runs when all of its incoming branches are satisfied.

For inputs associated with business items (only), you can specify the minimum and maximum numbers of values that are accepted as input by an incoming branch in a join. By default, the minimum number of values is 1 and the maximum number of values is 1, which means that the branch accepts exactly 1 value as input. If you change the minimum or maximum numbers on an incoming branch, the corresponding numbers for the output on the outgoing branch automatically change as well. For example, if you change one of the incoming branches to have a minimum of 2 values and a maximum of 3 values for the input, and leave the other incoming branch with a minimum of 1 value and a maximum of 1 value, the outgoing branch changes to allow a minimum of 3 values and a maximum of 4 values for the output. If you reorder the input branches of the join, the values stay with the branch to which you assigned them.

The incoming and outgoing branches are visible in all modes, but the inputs and outputs within the branches are only visible in the Intermediate and Advanced modes.

When to use merges versus joins

- Use a merge or join to redirect processing paths to a single connection after a process has been divided into more than one path through a decision or fork.
- The use of a merge or a join influences the number of times the elements downstream will run.
 - Because a merge runs whenever one of its incoming branches is satisfied, downstream elements can potentially run more than once.
 - Because a join runs only when all of its incoming branches are satisfied, downstream elements run once.
- If there are parallel paths, use a merge when you expect that only one of the parallel paths will be taken, and a join when you expect that all of the parallel paths will be taken.
- Both merges and joins merely combine (and, in the case of joins, synchronize) flows in the process; they do not combine business items.
 - Example: A join that receives two Order business items, one from each branch, will produce two Orders. If you want business items consolidated into one input, you must add a specific task to do that.

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Figure 3-22. When to use merges versus joins

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Notes:

Merges and joins both have multiple incoming branches and one outgoing branch and are both used to recombine separate paths in a process flow. However, they are used in different modeling situations and have different functions. A merge is normally used after an exclusive decision. It runs whenever *one* of its incoming branches is satisfied. As soon as an input branch is satisfied, all inputs that were received by that branch are immediately sent out as outputs. In contrast, a join works well after a fork. The join runs when *all* of its incoming branches are satisfied. It waits until all input branches are satisfied before sending any outputs, and sends all the outputs at the same time.

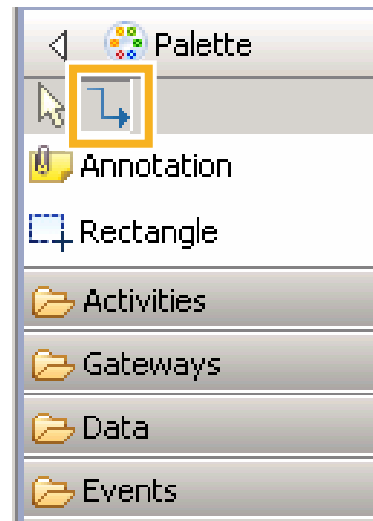
Use a merge or join to redirect processing paths to a single connection after a process has been divided into more than one path through a decision or fork. Normally merges are used after decisions, and joins are used after forks. A decision routes an input to one of several alternative outgoing paths, depending on its condition, whereas a fork makes copies of its input and forwards them by several processing paths in parallel. Use a merge when you expect that only one of the parallel paths will be taken, and a join when you expect that all of the parallel paths will be taken.

Both merges and joins merely combine (and, in the case of joins, synchronize) flows in the process; they do not combine business items. For example, a join that receives two Order business items, one from each branch, will produce two Orders. If you want business items consolidated into one input, you must add a specific task to do that.

Flow control: connection (1 of 2)



- A connection is a link between two elements
- Connections are used to specify the chronological sequence of activities in a process
 - Each task, subprocess, decision, or other element passes control to the next task or element along a connection
 - You can associate business items with connections to pass data from element to element
 - Each connection can have only one associated business item.
 - You can use multiple connections if you need to pass multiple business items between two elements



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Figure 3-23. Flow control: connection (1 of 2)

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Notes:

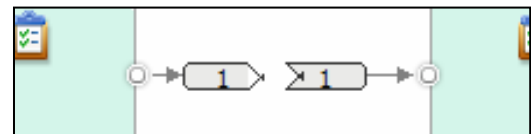
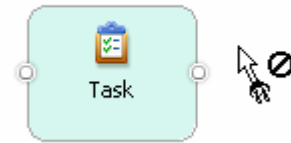
A connection is a link between two elements.

Connections can be used to specify the chronological sequence of activities in a process. Each task, subprocess, decision, or other element passes control to the next task or element along a connection. You can also associate business items with connections to pass data from element to element. Each connection can only have one associated business item, but you can use multiple connections if you need to pass multiple business items between two elements.

If you create multiple connections to a task (or any process element), then by default they are all required. If you want to model alternative inputs (where only one is required, but the input can come from different sources), add a merge in front of the process element and have the inputs go to the merge.

Flow control: connection (2 of 2)

- The connection icon appears as a plug with an arrowhead indicating the connection point in both basic and intermediate
 - The “Not” symbol appears when the cursor is hovering over a position that cannot be connected
 - The “Not” symbol disappears when hovering over a valid connection point
- In a very large diagram, you can split the connection into two individual nodes and connections



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Figure 3-24. Flow control: connection (2 of 2)

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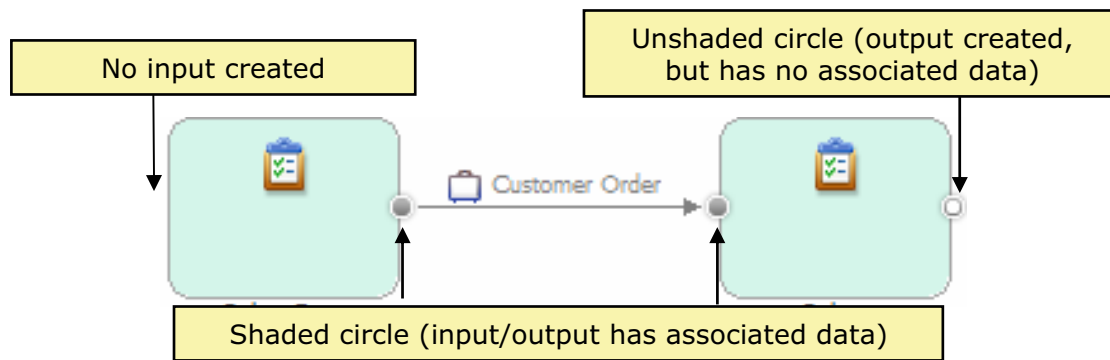
Notes:

You are in connection mode when the cursor has a plug icon next to it. The “Not” symbol (a circle with a slash line across it) appears if you hover the cursor over an element that can not be used as part of the connection. Check any messages that appear next to the cursor; these help explain why the connection can not be established.

In a very large diagram, when you have a connection between two elements that are far apart, you can choose to split the connection and have it represented by two individual nodes and connections. If you choose **Split and reposition**, the split nodes are positioned close to the elements that are the source (starting point) and target (ending point) of the original connection. You can right-click either of the split nodes or connections and jump to the corresponding split node or connection. You can also restore the original connection from either split node at any time.

Understanding connection graphics

- Terminology
 - Input criterion, output criterion: Small rounded rectangle attached to the right and left of a task; tasks can have multiple criteria
 - Input, output: Chevron icon in the criterion box; a criterion can contain multiple inputs or outputs
- What the graphics represent
 - Empty input/output criterion (rounded rectangle) indicates there is no input assigned
 - White input/output circle indicates an assignment was made but no business item associated
 - Shaded input/output icon indicates a business item is assigned
- How to view the assignments
 - Hover over the inputs and outputs to see the name of the input or output and the associated business item



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Figure 3-25. Understanding connection graphics

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Notes:

Events: start, terminate, and end



- 
 - Start
 - Identifies the beginning of a process flow
 - Usually used in top-level process within project
 - There are also many processes that start without data, usually because they are triggered by events in the real world, such as a customer arriving or an employee beginning work.
 - You can delete the start node and connect the process input to the first activity in a process
 - You may still want to use a start node. That way, the process can be triggered either by the arrival of certain inputs, or by the start node when a specific input criterion, which is a set of inputs, is satisfied.
- 
 - Terminate
 - Marks the termination of a process
 - Every process, subprocess, and loop **must** have at least one terminate node
 - If there are multiple points at which a process can be completed, each of these points must have a terminate node
 - Can also be used to terminate a process at any point where termination of all process activity is required, such as order cancellation
 - During simulation, the control flow and any business items are passed to the calling process when the terminate node is reached
- 
 - End
 - A visual marker within a process that identifies where a particular flow ends
 - Concurrent flows within the same process will still continue executing
 - An end node should only be used to mark the end of a particular process path and not the completion of a process
 - End nodes are optional; they permit you to express logic directly in the diagram

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Figure 3-26. Events: start, terminate, and end

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Notes:

A start node identifies the beginning of a process flow, and a terminate node marks the end. Start and terminate nodes are created automatically when you create a process.

Every process, subprocess, and loop must have at least one terminate node.

End nodes, by contrast, are simply visual markers within a process that identify the end of a particular flow. An end node indicates the termination of a path, whereas a terminate node terminates the entire process.

Start nodes

A start node identifies the beginning of a process flow whenever it is not started by another process. A start node is usually used in the top-level process within the project. Although you can use multiple start nodes within your process, for readability purposes it is recommended that your processes have a single starting point.

A start node appears automatically in any process you create. Since every start node must have an outgoing connection, the start node that appears automatically always has a warning associated with it. To see the warning, click the **Errors** tab in the Attributes view.

After you connect the start node to the first element in your process and save the process, the warning disappears.

In the Intermediate or Advanced mode, rather than using a start node to initiate the flow, you can delete the start node and connect business item inputs to the first task or subprocess in a process. For example, you could pass a customer order to the first task to start the process. When a process starts with a business item being passed in, the flow within the process originates from the process inputs. When a process starts without a business item, the flow originates from a start node. You can use a start node as the starting point for processes, such as a top-level process in the project, which have no defined inputs because they are not expected to receive data as input from other processes. There are also many processes that start without data, usually because they are triggered by events in the real world, such as a customer arriving or an employee beginning work.

Even if your process can start with a data input, you may still want to use a start node. That way, you can have the process triggered either by the arrival of certain inputs, or by the start node when a specific input criterion, which is a set of inputs, is satisfied.

If you have multiple input criteria, you can create multiple start nodes and associate each start node with a different input criterion. The flow from a start node only begins when all the inputs in its associated input criteria are satisfied.

Terminate nodes

A terminate node marks the end of a process. Every process, subprocess, and loop must have at least one terminate node. When a flow reaches a terminate node while the process is running, all flows in the process terminate. If at all possible, all paths in a process should terminate at a common completion point.

For simulation purposes, each process must have at least one terminate node. If there are multiple points at which a process can be completed, each of these points must end in a terminate node.

In addition to the terminate node at the end of the process or loop, signifying that the process or loop has completed all necessary tasks, you may also want to use terminate nodes to model a business situation that requires the termination of a process, for example if a process receives a customer order for a product that has been discontinued. Only use a terminate node when it is certain that all flows on all paths through a process on all paths should terminate when one individual path is finished.

A terminate node appears automatically in any process diagram you create. Since every terminate node must have an incoming connection, the terminate node that appears automatically always has a warning associated with it. To see the warning, click the **Errors** tab in the Attributes view. After you connect the last node in your process to the terminate node and save the process, the warning disappears.

In the Intermediate or Advanced mode, you can associate a terminate node with an output criterion, which is a set of specific outputs. If you associate a terminate node with an output criterion, the process produces only the outputs in that set when it reaches the terminate

node. This enables you to decide which of several potentially satisfied output sets will result from the process.

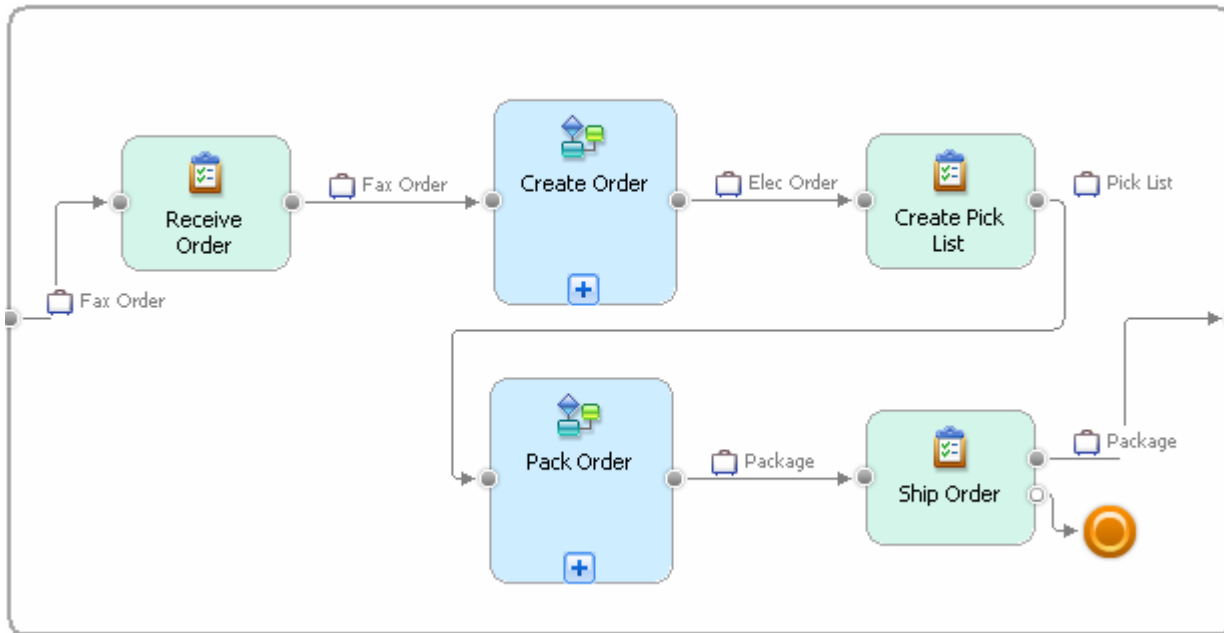
For simulation purposes, if you have multiple output criteria and have associated a terminate node with at least one, then you must associate a terminate node with all other output criteria.

End nodes

An end node is a visual marker within a process that identifies where a particular flow ends. Other concurrent flows within the same process will still continue executing. An end node should only be used to mark the end of a particular process path and not the completion of a process.

End nodes are optional, but they permit you to express logic directly in the diagram.

Highest level flow must have a terminate node



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Figure 3-27. Highest level flow must have a terminate node

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Notes:

Each subprocess must have a terminate node

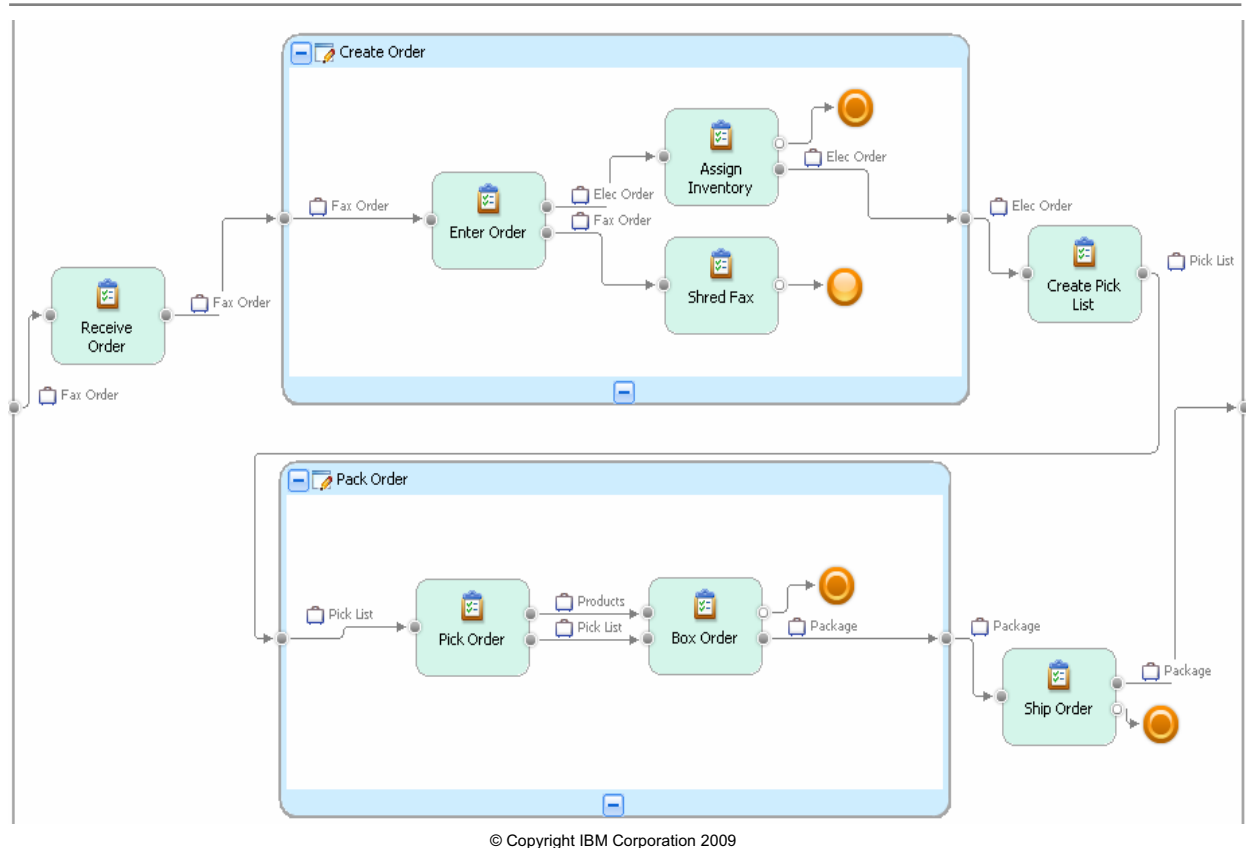


Figure 3-28. Each subprocess must have a terminate node

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Notes:

Compact layout

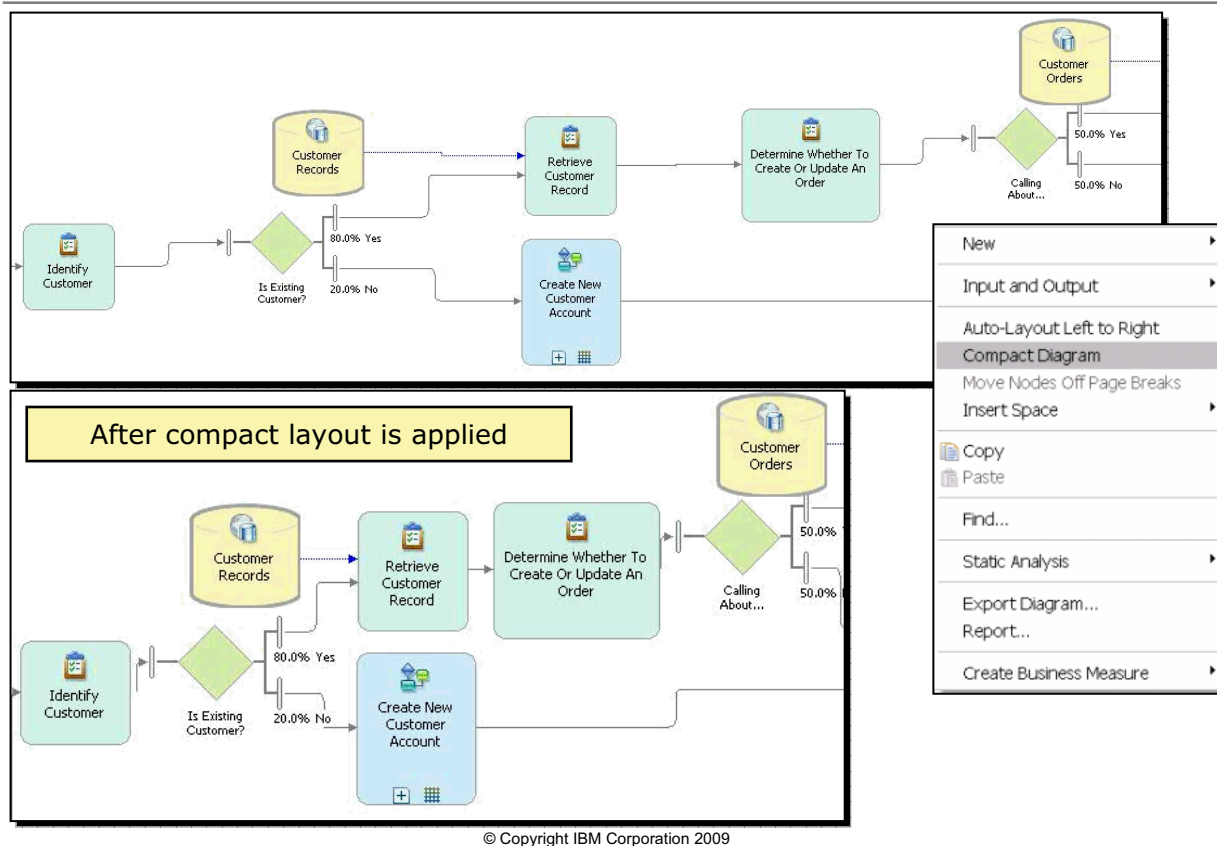


Figure 3-29. Compact layout

WB284 / VB2841.0

Notes:

If the diagram is a little cluttered, you can either rearrange the layout manually, or use the auto-layout function. To use the auto-layout function, right-click in the drawing area of the editor and select **Auto-Layout Left to Right**. After carrying out the auto-layout, you can save screen space by right-clicking again and selecting **Compact Diagram**. Auto-layout moves your elements around in an attempt to minimize any cross connections and to keep a logical flow across the diagram. Compact Diagram reduces the white-space between elements, but maintains the relative position of each element.

- Easily print, report, and view process diagrams in a limited space
- Better use of process diagram area
- Shortens connections as it does not remove gateways

Checkpoint

1. What are the three modeling modes you can use when building a process model?

2. What is the function of a repository in WebSphere Business Modeler?

3. What is the difference between a task and a process?

4. What is the difference between a terminate and an end?

5. What is the purpose of converting local elements to global ones?

6. Name the gateway elements that can be used in a process model.

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Figure 3-30. Checkpoint

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Notes:

Write your answers here:

- 1.
- 2.
- 3.
- 4.
- 5.
- 6.

Unit summary

Having completed this unit, you should be able to:

- Describe the modeling modes
- Create a process model
- Use the process editor
- Create a process catalog
- Describe the process elements
- Explain the relationship between local and global activities

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Figure 3-31. Unit summary

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Notes:

Checkpoint solutions

1. What are the two business modeling modes you can use when building a business process model?
Basic and advanced
2. What is the function of a repository in WebSphere Business Modeler?
Repositories represent locations for business items
3. What is the difference between a task and a process?
A task is a basic unit of work performed in the process, and cannot be decomposed. Processes are more complex than tasks, and are represented as a sequence of activities that are linked by flows of control and data. Activities can be other processes as well as tasks and other elements that control flow.
4. What is the difference between a terminate and an end?
A terminate node marks the termination of a process.
An end node is a visual marker within a process that identifies where a particular flow ends.
5. What is the purpose of converting local elements to global ones?
Activities are reusable or will require specific analysis, and the new global elements will appear in the Project Tree
6. Name the gateway elements that can be used in a process model.
Simple decision, multiple-choice decision, merge, fork, and join

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Figure 3-32. Checkpoint solutions

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Notes:

Exercise overview

In this exercise, you will:

- Add more elements to the process diagram
- Associate business items and connecting process elements
- Add a repository
- Convert local elements to global elements

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Figure 3-33. Exercise overview

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Notes:

Unit 4. Defining elements and attributes

What this unit is about

This unit describes the defining elements and attributes.

What you should be able to do

After completing this unit, you should be able to:

- Explain the following components:
 - Business items
 - Business services
 - Business service objects
 - Resources
 - Organizations
 - Classifiers
- Explain the timer, map, broadcaster, receiver, and observer
- Implement advanced attributes for tasks
- Add labels and colors

How you will check your progress

- Checkpoint
- Lab exercises

References

None

Unit objectives

After completing this unit, you should be able to:

- Explain the following components:
 - Business items
 - Business services
 - Business service objects
 - Resources
 - Organizations
 - Classifiers
- Explain the timer, map, broadcaster, receiver, and observer
- Implement advanced attributes for tasks
- Add labels and colors

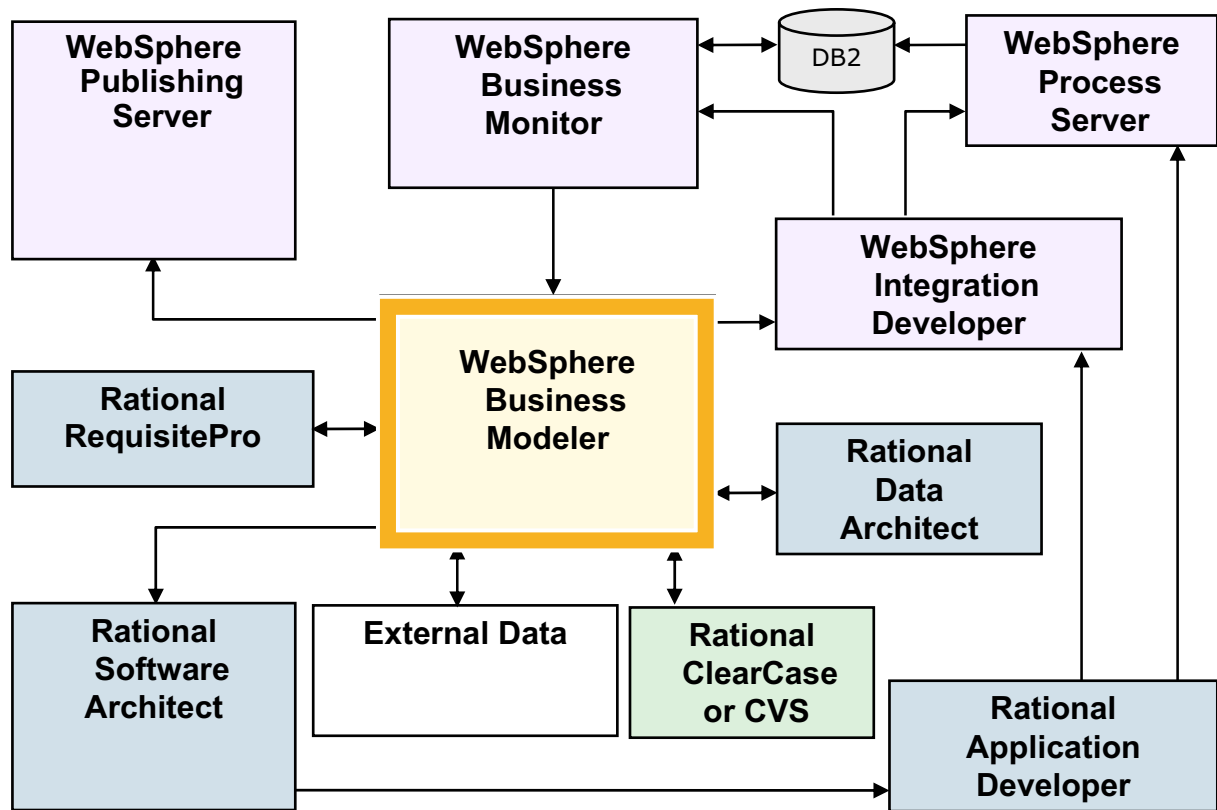
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Figure 4-1. Unit objectives

WB284 / VB2841.0

Notes:

Adding elements and attributes to the model



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Figure 4-2. Adding elements and attributes to the model

WB284 / VB2841.0

Notes:

Adding relevant information to the diagram

- A model includes a diagram with additional relevant information
 - Information on what is received, worked on, and produced
 - Business items
 - Information about who performs the work and when:
 - Resources
 - Roles
 - Timetables
 - Information on how the company is organized:
 - Organization unit
 - Location
 - Structure
 - Information on grouping related information for analysis:
 - Classifiers
- Information elements are defined and edited using editors opened in the project tree

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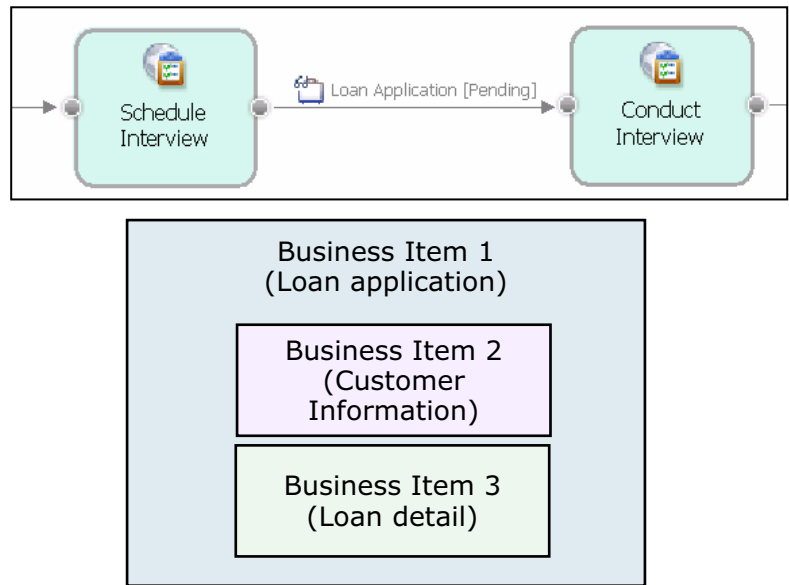
Figure 4-3. Adding relevant information to the diagram

WB284 / VB2841.0

Notes:

What is a business item?

- Business items
 - Business data, documents, work products, or physical commodities that are transformed by the process
 - Anything that is created, assembled, inspected, tested, modified, or worked on
 - Represented by an icon on the diagram
- Structure of a business item
 - Loan application
 - Customer information
 - First name
 - Last name
 - Street address
 - City
 - State
 - Zip code
 - Loan detail
 - Interest rate
 - Loan amount



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Figure 4-4. What is a business item?

WB284 / VB2841.0

Notes:

Business item information

- Business item instance
 - A particular occurrence of a business item
 - “Ticket #7” of business item “Problem Ticket”
 - Used in a simulation model to define the sample data when creating simulation values for business items
 - Based on a business item, which defines its attributes
 - The business item instance optionally has a specific value for each attribute defined by the business item.
- Business item templates
 - Used to model groups of business items that share common attributes
- Notifications
 - Occurrences in a process that can trigger actions
 - A process can use a notification to send information to one of its already-executing subprocesses, or a subprocess can use a notification to send information to its parent process.
 - Notifications can be used to model conditions of interest to be transmitted from a sender to a set of interested parties (the receivers).
 - The sender is not aware of the receivers of the notification.
- Notification templates
 - Used to model groups of notifications that share common attributes

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Figure 4-5. Business item information

WB284 / VB2841.0

Notes:

Adding business items

- Business item editor
 - Opens as tab in the process editor
- Attributes tab
 - Add one at a time
 - Based on a predefined template
- Attribute type can be added
 - Basic
 - From list of data type
 - Complex
 - From list of predefined types
- Documentation tab
 - Additional documentation
 - Attachments
- Business item icon can be customized
- Notifications are similar

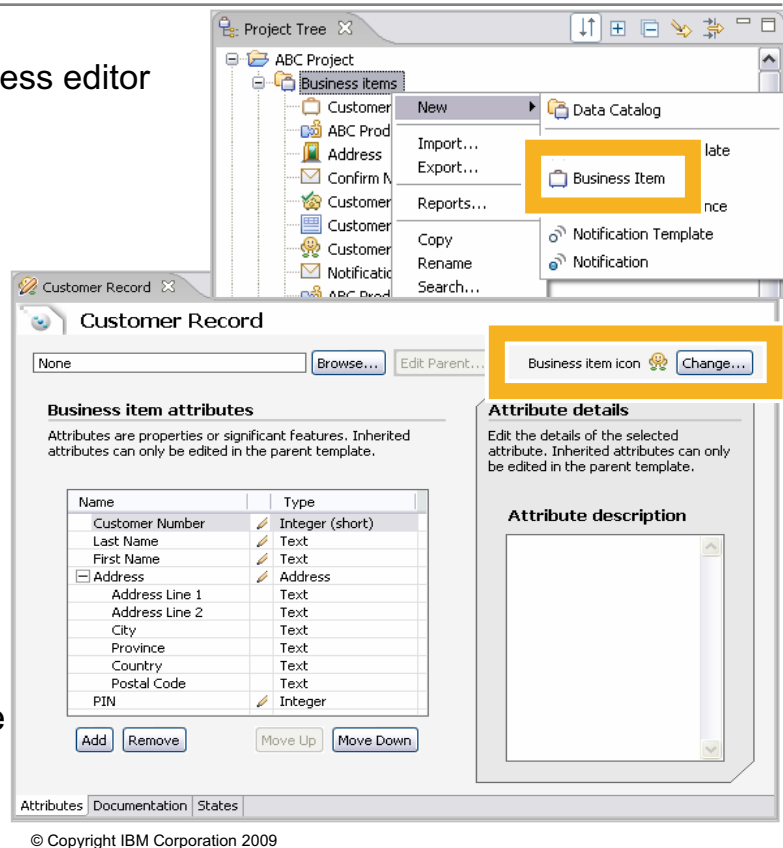


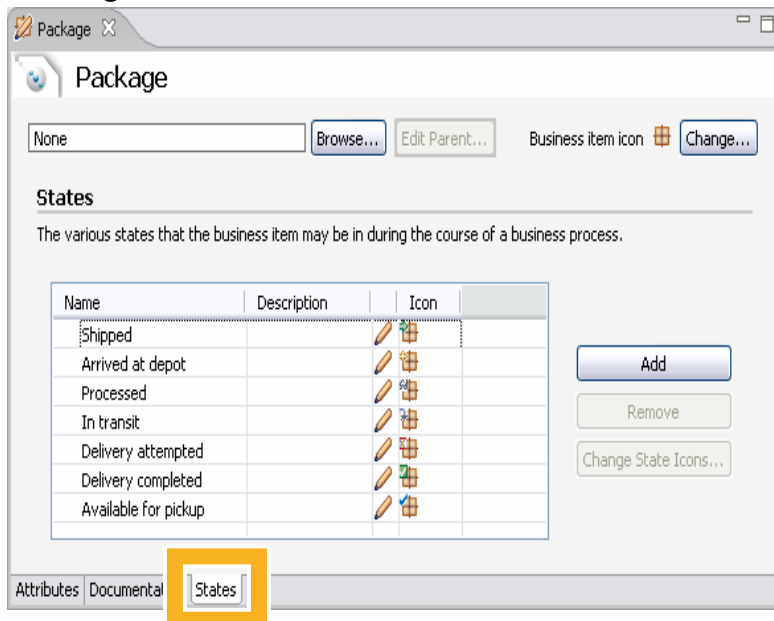
Figure 4-6. Adding business items

WB284 / VB2841.0

Notes:

Business item states

- Representations of different stages of a business item
- Example:
 - Business item: Package
 - Business item states:
 - Shipped
 - Arrived at depot
 - Processed
 - In transit
 - Delivery attempted
 - Delivery completed
 - Available for pickup
- Can be added to each business item or business item template



- Business item instances do **not** have states
- Not used during simulation

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Figure 4-7. Business item states

WB284 / VB2841.0

Notes:

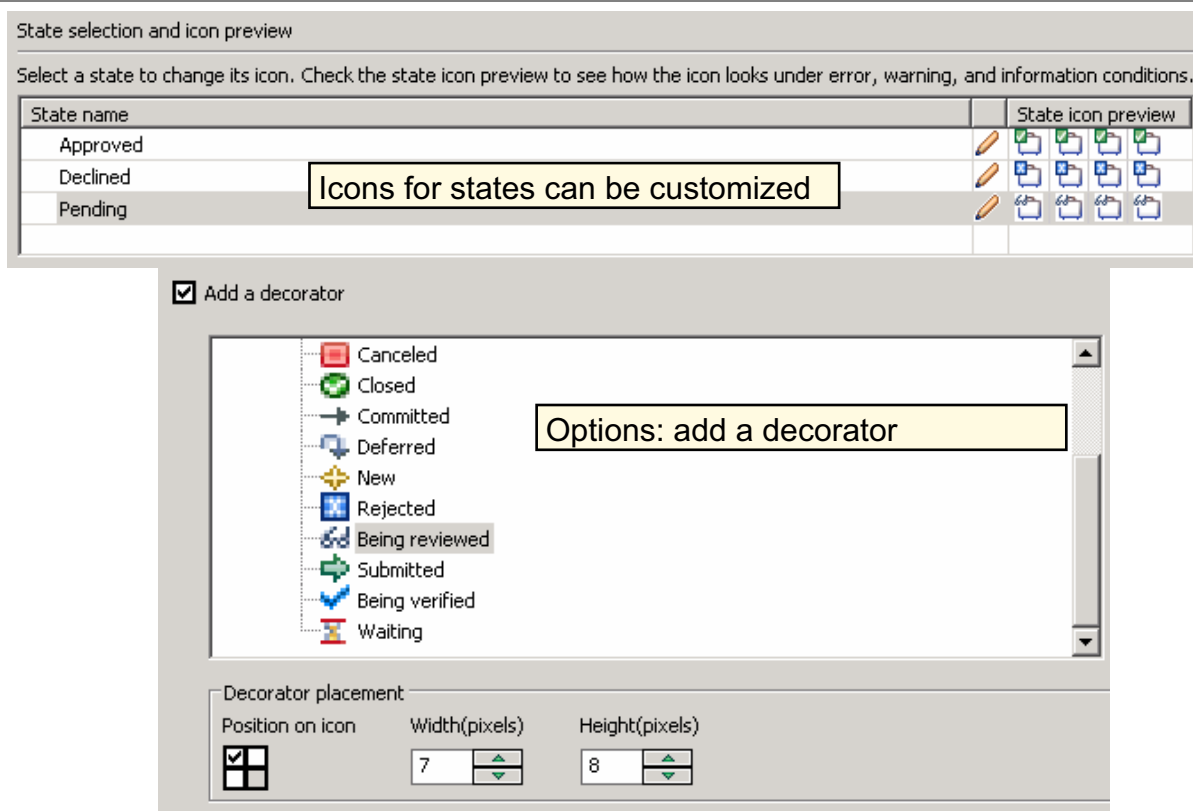
Business item states are representations of the different stages that a business item can go through in a business process.

For example, a package passes through several states during the shipping process. Tracking starts once it is shipped and continues until it is delivered or available for someone to pickup.

Another example, a Benefit Claim form might go through different states during a Claims process: submitted, reviewed, approved, completed, returned for information, or rejected. For the purpose of documenting business item states, you can add states for each business item or business item template and show these states in a process diagram using the state name and, optionally, a customized state icon. If a business item is based on a business item template, the business item inherits any states set for business item template. Business item instances do not have states.

Business item states are ignored during simulation.

Setting state icons



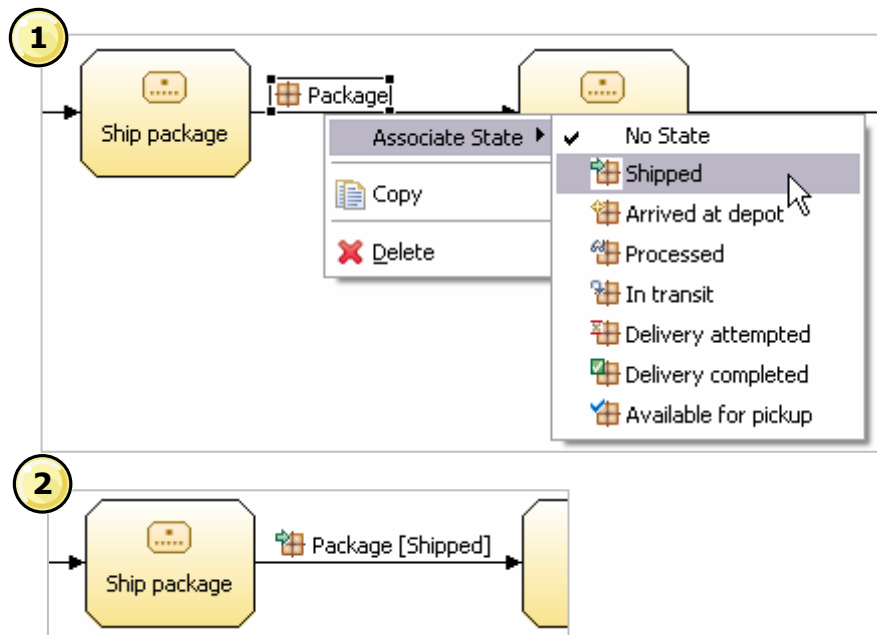
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Figure 4-8. Setting state icons

WB284 / VB2841.0

Notes:

Associating business item states



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Figure 4-9. Associating business item states

WB284 / VB2841.0

Notes:

To show the state of a business item in a process diagram, you associate the state with the input or output of an element, the connection between elements, or the representation of the business item on a connection. After you make this association, the state name is displayed in square brackets after the business item name. If you customized an icon to represent the state, this icon is displayed for the business item.

Business services and business service objects

(1 of 2)

- Business services
 - Are model element representations of WSDL (Web Services Definition Language) files
- Business service objects
 - Are model element representations of XSD (XML schema) files
- Both types of files can be imported so that the information they contain can be added to the processes being modeled.
 - If the services and service objects have already been implemented, the WSDL or XSD definitions can be imported.
- When you export a process using the WebSphere Process Server export and the process refers to business services or business service objects, WebSphere Business Modeler also exports the WSDL and XSD files that were imported to create them.

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Figure 4-10. Business services and business service objects (1 of 2)

WB284 / VB2841.0

Notes:

What is the IBM WebSphere Service Registry and Repository?

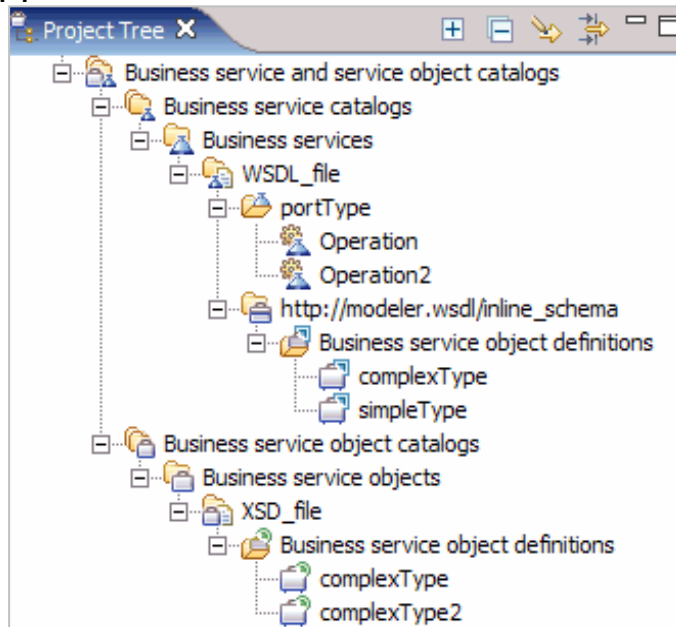
WebSphere Service Registry and Repository is a system for storing, accessing and managing information, commonly referred as service metadata, used in the selection, invocation, management, governance, and reuse of services in a successful SOA. In other words, it is where you store information about services in your systems, or in other organizations' systems, that you already use, plan to use, or want to be aware of. For example, an application can check the Registry and Repository just before invoking a service to locate the service instance best satisfying its functionality and performance needs. Registry and repository also play a role in other stages of the SOA life cycle.

WebSphere's view of a registry and repository encompasses:

- **A service registry** that contains information about services, such as their interfaces, operations, and parameters
- **A metadata repository** providing a robust, extensible framework to suit the diverse nature of service usage

Business services and business service objects (2 of 2)

- WebSphere Business Modeler uses a separate set of catalogs for elements imported from WSDL and XSD files, despite their similarities to business items and services, because changing them would affect existing applications.
 - The business services and business service objects cannot be edited except in simulations.
 - In simulations costs, durations, interrupts, and resources can be added.
 - If a business service or business service object needs to be edited, the only way to do so is to modify the WSDL or XSD file and import again.



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Figure 4-11. Business services and business service objects (2 of 2)

WB284 / VB2841.0

Notes:

Resource information

- Roles
 - Add additional characteristics to resources.
 - An employee resource could have the role of customer service representative or manager.
 - A scope dimension can be added to a role defining additional requirements.
- Resources
 - Resources represent the people, equipment, or material used to perform a task.
 - Two types of resources: individual resources and bulk resources.
 - Individual resources are resources where a specific instance is required.
 - Bulk resources are resources where any instance of a type of resource from a pool can be used.
 - Non-consumable (such as employees, vehicles, or equipment) are used.
 - Consumable (such as fuel or printer paper) are diminished or used up.
 - Bulk resources are not uniquely identified, but whether resources need to be identifiable may depend on how they are being used.
 - In a car rental agency, bulk information is important to the executive, while individual car information is important to the rental desk.
 - Predefined resource definitions can be used to define resources.
- Timetables
 - A schedule of times that determines the availability of the roles and resources and their associated costs.

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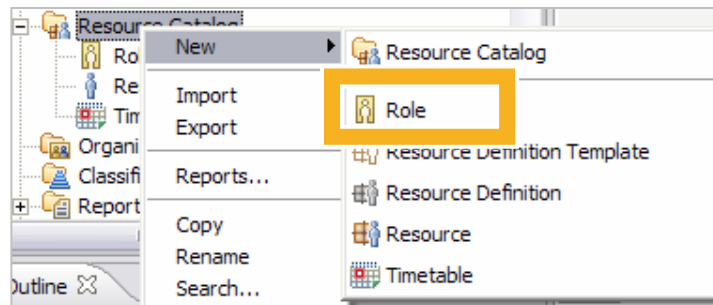
Figure 4-12. Resource information

WB284 / VB2841.0

Notes:

Adding a role

- Roles
 - Defined and edited in Project Tree
- Role editor
 - Opens as an editor tab
- Number of roles
 - Assigned in analysis
- Four tabs



Data Entry

Qualifications

Use this section to add qualifications. A qualification defines and measures specific qualities and requirements for a role.

Typing skills - 45 wpm

Availability

This role is available during the periods defined in the following timetables:

Standard Calendar

☐ No color
 ☒ Assigned color

Documentation

Description of this role.

Costs

List of time-dependent costs of the role.

Cost type	Value	Currency
Cost per time unit	15.00	USD

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Figure 4-13. Adding a role

WB284 / VB2841.0

Notes:

Adding resources

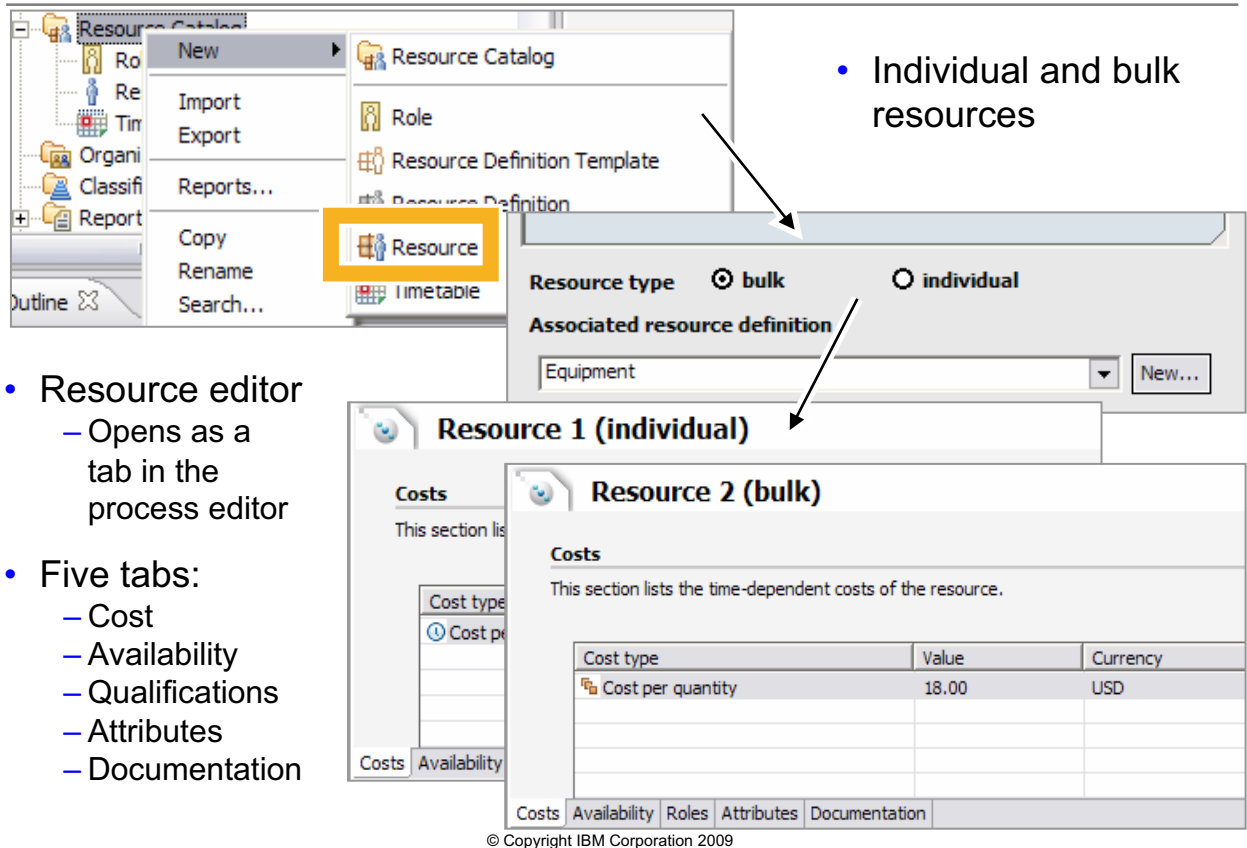


Figure 4-14. Adding resources

WB284 / VB2841.0

Notes:

There are individual and bulk resources.

Resource editor:

- Opens as a tab in the process editor

There are five tabs:

- Cost: the cost of using the resource
- Availability: when this resource is available
- Qualifications: roles this resource can perform
- Attributes: fields associated with a resource
- Documentation: additional documentation, attachments

Individual resource

Resource 1 (individual)

Costs
This section lists the time-dependent costs of the resource.

Cost type	Value	Currency
⌚ Cost per time unit	30.00	USD

Standard Schedule

Number: 0
Repet: 1

Roles
This resource takes part in the following roles:

Role 1

Instance of Person

Resource attributes
Attributes of the resource definition. If the resource definition is updated, refresh the table to synchronize this resource with the resource definition.

Name	Type	Minimum	Maximum	First
personId	String	1	1	
lastName	String	1	1	

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Figure 4-15. Individual resource

WB284 / VB2841.0

Notes:

Bulk resources

Resource 2 (bulk)

Costs
This section lists the time-dependent costs of the resource.

Cost type	Value	Currency
Cost per quantity	18.00	USD

☐ Consumable **Available quantity** 1 units

Availability
This resource is available during the periods defined in the following timetables:

Roles
This resource takes part in the following roles:

Standard: Role 1

Instance of Equipment

Resource attributes
Attributes of the resource definition. If the resource definition is updated, refresh the table to synchronize this resource with the resource definition.

Name	Type	Minimum	Maximum	First value
abbreviation	String	0	1	
department	Organization	0	n	

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Figure 4-16. Bulk resources

WB284 / VB2841.0

Notes:

Adding a timetable

- Timetable editor
 - Opens as tab in the process editor
- Three tabs
 - Recurring time intervals
 - Times to repeat — forever
 - Repetition period
 - Beginning date and time
 - Recurring available intervals
 - Exemption periods
 - When timetable does not apply
 - Documentation
 - Additional documentation
 - Attachments
 - Attributes view
 - Visual representation

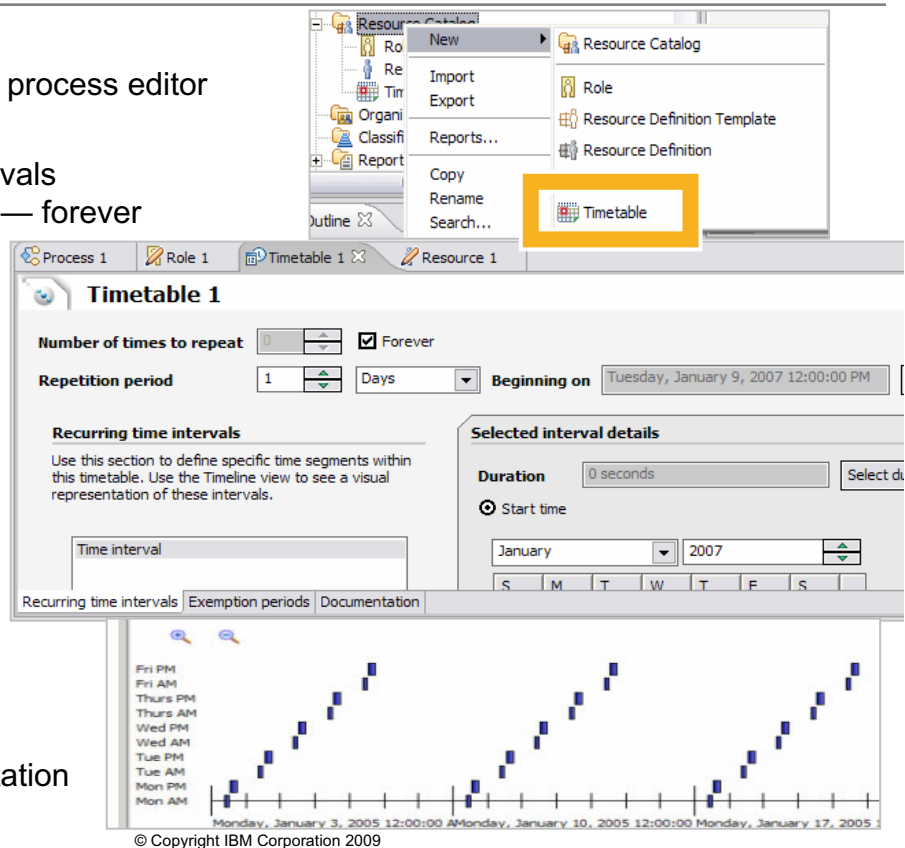


Figure 4-17. Adding a timetable

WB284 / VB2841.0

Notes:

Organization information

- Organization
 - Organization unit
 - The specific organizational groups inside an organization.
 - Organization units can be enterprises, companies, departments, or teams.
 - Every organization unit is based on an organization definition, with attributes.
 - Location
 - The specific places of interest to your organization.
 - Locations can be the name of a location, headquarters, or a physical location such as New York.
 - Use the structure editor to model how the locations relate to each other.
 - Associate the locations with elements in your process model to show where each task takes place, or where a particular resource is located.
 - Structure
 - Hierarchical relationships between different organizational entities.
 - Structures model how business elements such as locations, resources, and organization units relate to one another outside the context of a process.
 - Structures are graphical representations of relationships.

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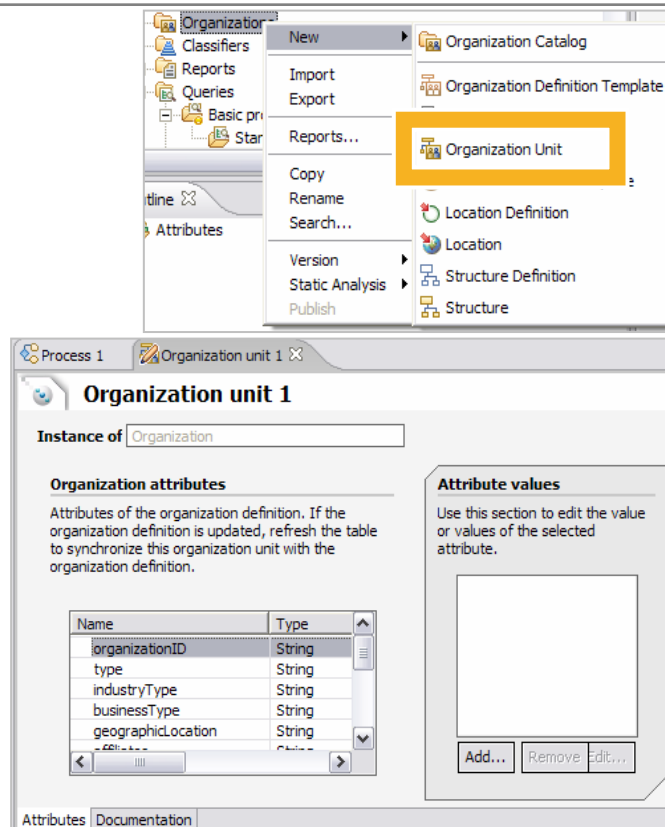
Figure 4-18. Organization information

WB284 / VB2841.0

Notes:

Adding an organization unit

- Organization units
 - Defined and edited in Project Tree
- Organization unit editor
 - Opens as a tab in the process editor
- Attributes tab
 - Based on organization definition
 - Create custom definitions
 - Use predefined definitions
 - Template can be created
- Attribute type can added
 - Basic
 - From list of data types
 - Complex
 - From list of predefined types
- Documentation tab
 - Additional documentation
 - Attachments



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Figure 4-19. Adding an organization unit

WB284 / VB2841.0

Notes:

Adding a location

- Location editor
 - Opens as a tab in the process editor
- Attributes tab
 - Based on location definition
 - Create custom definitions
 - No predefined definitions
 - Template can be created
- Attribute type can added
 - Basic
 - From list of data types
 - Complex
 - From list of predefined types
- Documentation tab
 - Additional documentation
 - Attachments

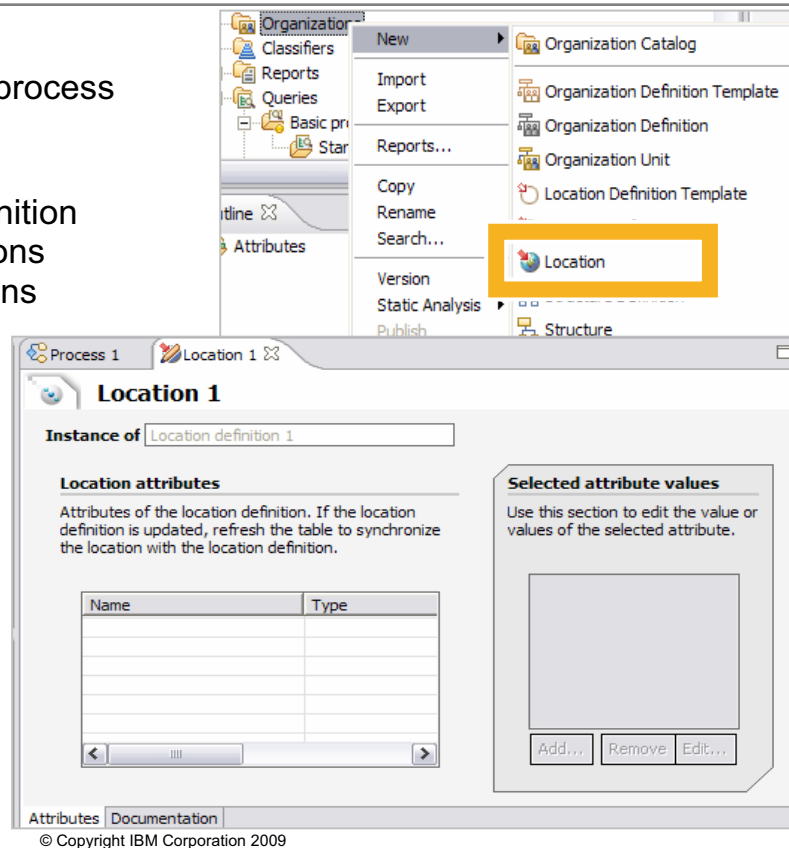


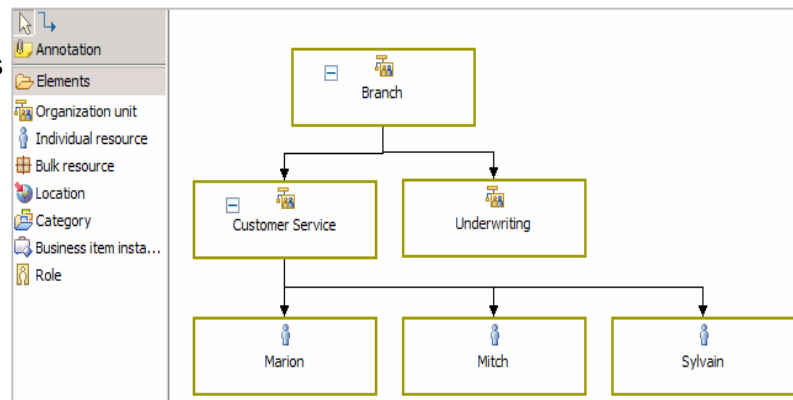
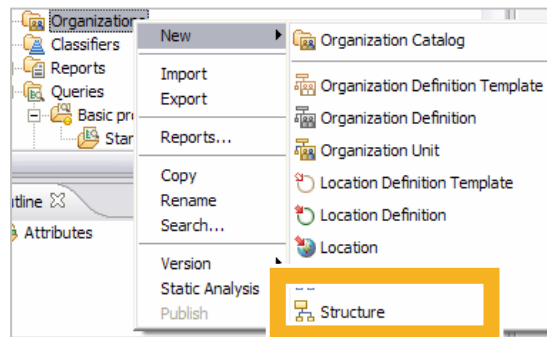
Figure 4-20. Adding a location

WB284 / VB2841.0

Notes:

Adding structure

- Structure editor
 - Opens as tab in process editor
 - Similar to process editor
 - Graphical editor
- Diagram tab
 - Based on structure definition
 - Structure types
 - Organization units
 - Individual resources
 - Bulk resources
 - Locations
 - Categories
 - Business item instances
 - Roles
- Page layout
 - Setup for printing



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Figure 4-21. Adding structure

WB284 / VB2841.0

Notes:

Using classifiers

- Classifiers
 - Enable you to categorize tasks and other process elements for decision-making or process optimization
 - Can be shown on the diagram for visual analysis
 - Can be shown tables for numerical analysis
- Classifier values
 - Each classifier has a number of classifier values which can be assigned
- Predefined classifiers: quality control, value added, and workflow
- Custom classifiers can be added to focus the analysis
 - Functional area
 - Values: accounting, legal, administration, sales
 - Type of work
 - Values: manual, automated, semi-automated
- Multiple classifier values can be assigned to a specific element as long as each value belongs to a different classifier.

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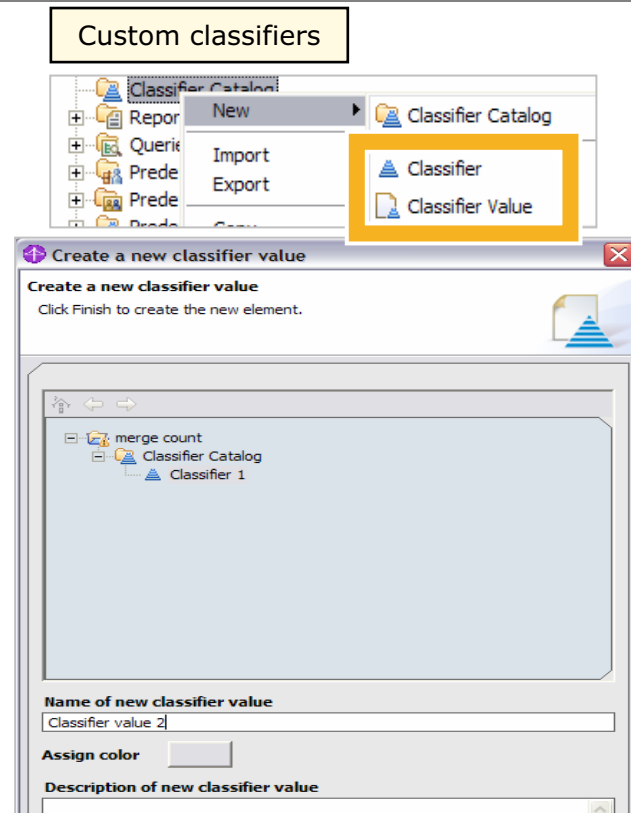
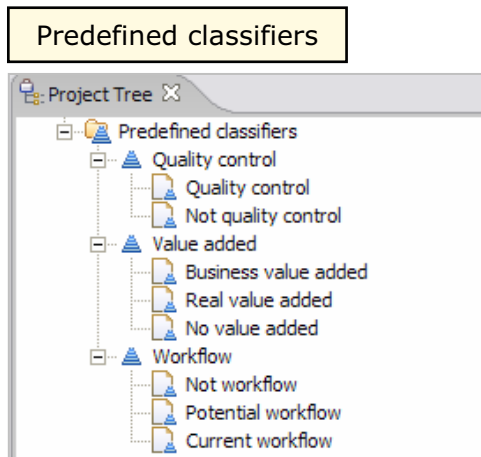
Figure 4-22. Using classifiers

WB284 / VB2841.0

Notes:

Adding classifier information

- Classifier editor
 - Pop-up window
- Classifier value editor
 - Opens as tab in the process editor
- Predefined classifiers



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Figure 4-23. Adding classifier information

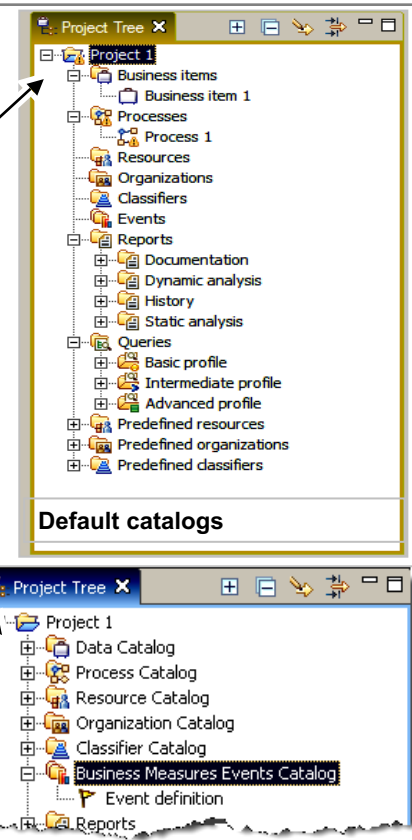
WB284 / VB2841.0

Notes:

Organizing detailed model information

- Like items are grouped into catalogs for easy access.
- Each large catalog can be subdivided into lower level catalogs.
- Default catalogs are created:
 - (In this course, catalogs are renamed as shown in parentheses)
 - Business items (Data Catalog)
 - Processes (Process Catalog)
 - Resources (Resource Catalog)
 - Organizations (Organization Catalog)
 - Classifiers (Classifier Catalog)
- Predefined catalogs
 - Resources
 - Organizations
 - Classifiers

Renamed
catalogs



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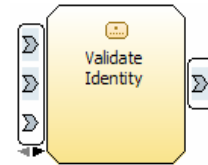
Figure 4-24. Organizing detailed model information

WB284 / VB2841.0

Notes:

Task: associating detailed attributes (1 of 6)

- Attributes complete the definition of the task
- Cost and duration are specific values or a distribution
- Example: Validating a person's identity



Attributes - Validate Identity X Business Measures Static Analysis Errors (Filter matched 0 of 0 items)

General Cost and Revenue Duration Inputs Outputs Input Logic Output Logic Resources Organizations Classifiers

General information

This section provides general information about this task.

Name
Validate Identity

Description
Validate a person's identity by requiring two of three forms of identification (birth certificate, driver, passport)

General Cost and Revenue Duration Inputs Outputs Input Logic Output Logic Resources Organizations Classifiers

Processing cost
Startup cost
Wait-time cost
Revenue

Processing cost: Expense incurred every time this task runs
Startup cost: Initial expense incurred when this task starts
Wait-time cost: Expense incurred while this task waits for a resource
Revenue: Money earned when this task is finished

General Cost and Revenue Duration Inputs Outputs Input Logic Output Logic Resources Organizations Classifiers

Processing time
Resource wait time

Processing time: Length of time required to finish this task
Resource wait time: Maximum length of time permitted to wait for a resource

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Figure 4-25. Task: associating detailed attributes (1 of 6)

WB284 / VB2841.0

Notes:

Task: assigning detailed attributes (2 of 6)

Input or output name	Can be changed to provide more meaning
Associated data	Business item associated with input or output
State	Business item state associated with input or output
Minimum, maximum	In input settings: Number of business items required to execute task In output settings: Number of business items to be created
Input source or output target	Flow: Task retrieves data from an upstream element Repository: Task retrieves data from a repository Constant (input source only): Specify constant value (such as "100"), business item instance, or expression

Inputs

Input settings

This section provides detailed information about the inputs.

Name	Associated data	State	Minimum	Maximum	Input source
Input	Birth Certificate		1	1	Flow
Input:2	Driver License		1	1	Flow
Input:3	Passport		1	1	Flow

Outputs

Output settings

This section provides detailed information about the outputs.

Name	Associated data	State	Minimum	Maximum	Output target
Output	Valid ID		1	1	Flow

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Figure 4-26. Task: assigning detailed attributes (2 of 6)

WB284 / VB2841.0

Notes:

Inputs

An input is an entry point through which an element (such as a process or task) is notified that it can start, typically because an upstream element, on which it depends, has finished running. An element starts once it has all of its required inputs. The inputs also define the data that the element needs before it can run.

You can specify any number of inputs. You can add additional inputs in a process diagram by drawing connections to the element. For a global element, inputs that have associated data are part of the specification of the element.

An input can be used to pass data to an element. The data can be a business item or a basic type (such as a text string like "id4567"). You can specify the minimum and maximum number of data items in the input. For example, you might specify that a task must receive a minimum of one invoice and a maximum of five invoices before it will start. If the input can contain more than one item, you can also specify whether the items must be unique and whether they must be in order. This example is designed for process modeling only and might not simulate.

It is a good idea to give meaningful names to inputs as you create them, such as “savingsAccount” rather than “input1.” Named inputs and outputs make reports easier to understand.

For a local element within the diagram that has associated data, you can also specify the source of the input. The following are the possible sources:

- Flow, which means an upstream element passes the data to this element
- Repository, which means this element retrieves the data from a repository
- Constant, which means you specify a constant value (such as “100”), a business item instance, or an expression

Outputs

An output is an exit point through which an element can inform downstream elements that they can now start. The outputs from a process, task, or other element also define the data that the element will produce after it has run.

You can specify any number of outputs for a process or task. You can add additional outputs in a process diagram by drawing connections from the element to another element. For a global element, outputs that have associated data are part of the specification of the element.

An output can be used to pass data on to the next element. The data can be a business item or a basic type (such as a number). You can specify the minimum and maximum number of data items in the output. For example, you might specify that a task must produce a minimum of one order and a maximum of ten orders. If the output can contain more than one item, you can also specify whether the items must be unique and whether they must be in order.

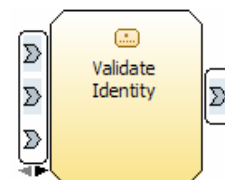
It is a good idea to give meaningful names to outputs as you create them, such as “customerOrder” rather than “output1.” Named inputs and outputs make reports easier to understand.

For a local element within the diagram that has associated data, you can also specify the target of the output. The following are the possible targets:

- Flow, which means this element passes the data to a downstream element
- Repository, which means this element sends the data to a repository

Task: assigning detailed attributes (3 of 6)

- Input criteria
 - Specifies the combination of business items needed for the task to start
 - Default uses “AND” logic (all business items are required)
 - “OR” logic is represented by adding separate rows for each criterion
 - Complex logic is represented by small two-headed arrow below the task inputs
- Preconditions
 - Specifies the values of the business item attributes needed for the task to start
 - Each condition is named and described
 - An expression is created to specify how each condition is to be evaluated



General	Cost and Revenue	Duration	Inputs	Outputs	Input Logic	Output Logic	Resources
Input criteria This section shows the input criteria for this element. At least one of these criteria must be satisfied in order for the element to start.							
	Name	Input	Input:2	Input:3	Criterion		
	Input Criterion	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Input AND Input:2		
OR	Input Criterion:2	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Input AND Input:3		
OR	Input Criterion:3	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Input:2 AND Input:3		
Preconditions This section shows the preconditions for this element. These conditions must be met before the element can start.							
Country of Birth		Add		Name		Country of Birth	
		Remove		Description		Determine the country of birth for exceptions to documentati	

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Figure 4-27. Task: assigning detailed attributes (3 of 6)

WB284 / VB2841.0

Notes:

Input Logic

In the Intermediate or Advanced mode, you can group inputs to form a set of inputs known as an input criterion. Each input criterion defines a particular combination of inputs that can start a process, task, or other element.

If you add more than one input criterion, selection arrow icons are shown in the process diagram. Clicking the arrows shows each of the input criteria in turn, by applying a darker background to the inputs that are in the selected input criterion.

You can set *preconditions* that must be true before the element can run. Preconditions apply to the element rather than to a specific input criterion. A precondition documents the assumptions that have been made within the model and must be true. Because preconditions are assumptions, violation of a precondition represents a condition that your flow cannot recover from. You should perform actions somewhere upstream to ensure that this condition does not occur. If you want to model a flow that can recover from this

condition, you should explicitly model the condition (likely using a decision) and model the tasks that should be performed when the condition is detected. The behavior of an automated process when a precondition is violated depends on the runtime platform that it is executing on. Often a violated precondition is treated as an exception.

In the Advanced mode, you can define *constraints* that limit the input criteria. For example, if you have an input criterion that consists of a customer record and a savings account as the input, you can add a constraint stating that the customer record must be in the database. If an input criterion constraint is not true, the element will not run.

You can also specify a *correlation condition*, which defines an association between an input criterion of an element and a particular instance of that element in a runtime environment. For example, if there are multiple instances of a single task already running, and new input arrives which could be delivered to a running instance, the correlation condition is used to identify the task instance that should receive the input. A correlation indicator icon is displayed in the process diagram when you add a correlation condition.

Input criteria can be used as alternatives to the merge and join nodes. In the example on this slide, the input criteria of the Validate Identity task indicate that the task will start when it receives any two of the three possible business items (birth certificate, driver license, passport).

Task: assigning detailed attributes (4 of 6)

- Output criteria
 - Specifies the combination of business items to be produced
 - Default uses “AND” logic (all business items created)
 - “OR” logic is represented by adding separate rows for each criterion.
 - Complex logic is represented by small two-headed arrow below the task outputs
- Postconditions
 - Specifies the values of the business item attributes to be produced
 - Each condition is named and described
 - An expression is created to specify how each condition is to be evaluated

General Cost and Revenue Duration Inputs Outputs Input Logic **Output Logic** Resources

▼ Output criteria

This section shows the output criteria for this element. When an output criterion is satisfied, output is produced.

Name	Probability (%)	Output	Criterion
Output Criterion	100	<input checked="" type="checkbox"/>	Output

▼ Postconditions

This section shows the postconditions for this element. These conditions are checked after the element finishes and must be met before the results are

Name	Description
Birth Date	Identify birth date for further processing

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Figure 4-28. Task: assigning detailed attributes (4 of 6)

WB284 / VB2841.0

Notes:

Output Logic

For subprocesses and for activities within a process, you can specify logic that determines what combination of outputs the activity produces in a simulation run from all possible outputs defined in the output criteria.

In the Intermediate or Advanced mode, you can group outputs to form a set of outputs known as an output criterion. Each output criterion defines a particular combination of outputs that can start a process, task, or other element.

If you add more than one output criterion, selection arrow icons are shown in the process diagram. Clicking the arrows shows each of the output criteria in turn, by applying a darker background to the outputs that are in the selected output criterion. If you have more than one output criterion, you can specify probabilities to indicate how often each of the criteria is satisfied. For example, you could specify 60 for the more likely criterion and 40 for the less likely criterion. If you leave the probability unspecified, each output criterion is considered equally likely when you create a simulation snapshot.

You can also set *postconditions* that must be true after the element has run. Postconditions apply to the element rather than to a specific input criterion. A postcondition documents assumptions you are making within your model, which must be true after the element runs. Because postconditions are assumptions, violation of a postcondition represents a condition that your flow cannot recover from. You should perform actions somewhere downstream to ensure that this condition does not occur. If you want to model a flow that can recover from this condition, you should explicitly model the condition (likely using a decision) and model the tasks that should be performed when the condition is detected. The behavior of an automated process when a postcondition is violated depends on the runtime platform that it is executing on. Often a violated postcondition is treated as an exception.

In the Advanced mode, you can specify advanced output logic for an output criterion. If you specify that the element can send output while still executing, a streaming indicator icon is displayed in the process diagram. If you specify that the output is produced as a result of an error condition, perhaps because you have modeled the postcondition behavior described above, an exception indicator icon is displayed. You can also associate the output criterion with a specific list of input criteria.

The probabilities for all regular and exceptional output criteria must add up to 100%.

Task: assigning detailed attributes (5 of 6)

- Resources
 - Role requirements — the role or roles required to complete the task
 - Individual resource requirements — the specific individual resources required to complete the task
 - Bulk resource requirements — the bulk resources required to complete the task
- Time required
 - The time the resource requires to complete the work for the task
 - May be different for each resource and different from the task duration
- Quantity
 - The number of resources needed to complete the specific task, not those available

General Cost and Revenue Duration Inputs Outputs Input Logic Output Logic **Resources** Organizations Classifier

▼ Role requirements
This section displays the list of role requirements.

Name	Role	Time required	Quantity	Unit of measure	Resource definition
Role requirement:1	Data Entry	30 minutes	1	units	Person

Add

▼ Individual resource requirements
This section displays the list of individual resource requirements.

Name	Individual resource	Time required	Criteria
Individual requirement:1	Person	0 seconds	

Add

▼ Bulk resource requirements
This section displays the list of bulk resource requirements.

Name	Bulk resource	Time required	Quantity	Unit of measure
Bulk requirement:1	Equipment	0 seconds	1	units

Add

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Figure 4-29. Task: assigning detailed attributes (5 of 6)

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Notes:

Task: assigning detailed attributes (6 of 6)

- Organizations
 - Organization units
 - Organization units responsible for this task
 - Locations
 - Locations responsible for this task
- Classifier
 - Classifier
 - Multiple classifiers per task
 - Classifier value
 - One classifier value per classifier

The figure consists of two screenshots of the IBM Modeler V6.2 interface, showing the 'Organizations' and 'Classifier' tabs for task attribute assignment.

Top Screenshot (Organizations tab):

- The 'Organizations' tab is selected and highlighted with a yellow box.
- The 'Organization units and locations' section is expanded.
- The text states: 'This section shows the responsible organization units and locations for performing this task.'
- Under 'Organization units', there is a dropdown menu with 'Corporate Security' selected.
- Under 'Locations', there is a dropdown menu with 'Headquarters' selected.

Bottom Screenshot (Classifier tab):

- The 'Classifier' tab is selected and highlighted with a yellow box.
- The 'Classifiers and classifier values' section is expanded.
- The text states: 'This section shows the associated classifiers and classifier values for this task.'
- A table is displayed with the following data:

Classifier	Classifier value
/merge count/Predefined classifiers/Value added	Business value added

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Figure 4-30. Task: assigning detailed attributes (6 of 6)

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Notes:



Map task

- A specialized task that transforms data from one structure to another
 - A map specifies how to transform an input into output
 - Provides the same functionality as a local task
 - Provided only for diagramming purposes
- Example
 - A map could be used to represent an automated task that converts a name from one format to another.
 - The map (task) takes name in the format, first last, to a, last comma first, format
 - John Smith to Smith, John

Attributes - Map Simulation Control Panel Errors (Filter matched 23 of 23 items) Technical Attributes

General Cost and Revenue Duration Inputs Outputs Resources

General information

This section provides general information about this map.

Name General Map

Description Map Description

Processing cost

The expense incurred every time this task runs.

Literal value 50

Processing time

The length of time required to finish this task.

Literal value

Days 0 Hours 1 Minutes 5

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Figure 4-31. Map task

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Notes:

Map editor

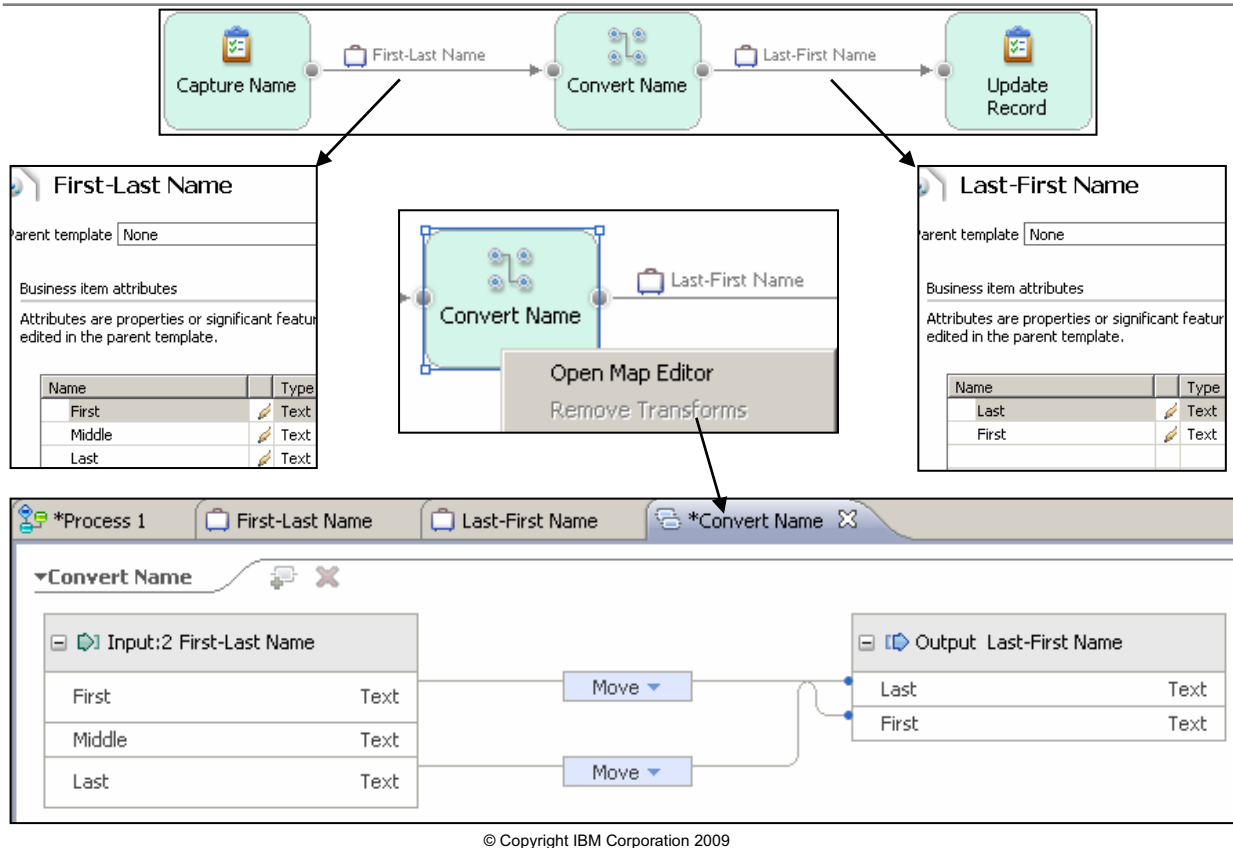


Figure 4-32. Map editor

WB284 / VB2841.0

Notes:

You can only launch the Map editor for maps that contain output that has associated data. If the outputs do not contain data, the Map editor will not open.

Additional elements

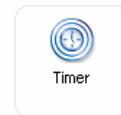
- These elements serve a specific purpose and make the model more realistic.
- Special purpose tasks
 - Timer
 - Initiates a flow at a specified point in time
 - Broadcaster
 - Publishes a notification
 - Receiver
 - Listens for notifications
 - Observer
 - Watches the repository contents

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Figure 4-33. Additional elements

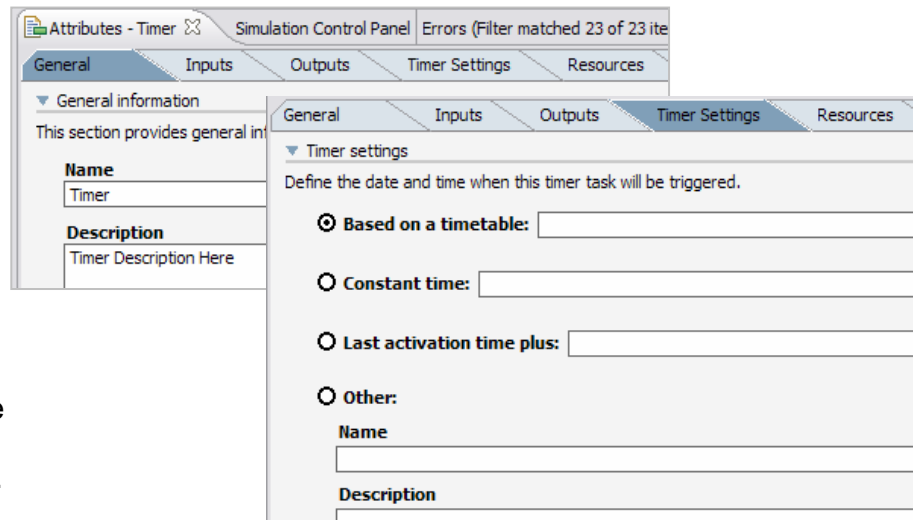
WB284 / VB2841.0

Notes:



Timer

- A specialized task that initiates a flow at a specified point in time
- Two kinds of timers:
 - A timer that goes off once
 - It goes off at a specific date and time and then terminates.
 - It goes off after a specified amount of time and then terminates.
 - A timer that goes off at regular time intervals
 - It goes off at specified intervals on a scheduled basis.
 - This timer is associated with a timetable that has recurring times.



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Figure 4-34. Timer

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Notes:

A timer is a specialized task that initiates a flow at a specified point in time. For example, it starts a batch process flow at 5:00 every evening.

You can create the following two kinds of timers:

- A timer that “goes off” (produces output) once. For example, the timer goes off at 3:00 p.m. on January 20th, 2008. Then the timer instance terminates.
- A timer that goes off at regular time intervals. For example, the timer goes off at 9:00 every morning. This timer is associated with a timetable that has recurring times.

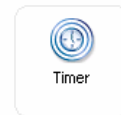
A timer that goes off once would use one of the following settings:

- **Based on a timetable** (which specifies a single point in time)
- **Constant time** (specify the exact date and time)
- **Last activation time plus** (specify the time to wait before producing output)

A timer that goes off at regular time intervals would use:

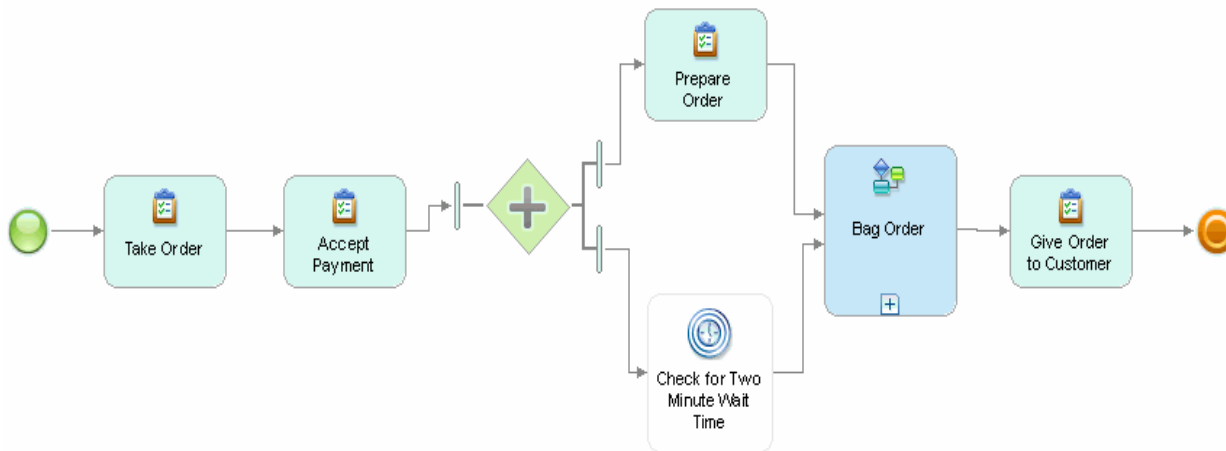
- **Based on a timetable** (set up to specify regular time intervals)

A common use of a timer is to model an automated process that runs every week on a certain day and time, such as a virus checker that runs at noon every Friday. The timer action would be the first action in this process, and it would start a subprocess when the correct time is reached.



Timer: Example

- Drive-through at fast food restaurant
- If customer does not receive order within two minutes, customer receives a coupon
- Timer task starts when customer arrives
- If task duration of Prepare Order exceeds two minutes, discount coupon is included in bag



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Figure 4-35. Timer: Example

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Notes:

A common use of a timer is to model an automated process that runs every week on a certain day and time, such as a virus checker that runs at noon every Friday. The timer action would be the first action in this process, and it would start a subprocess when the correct time is reached.

As another example, you could use a timer to model a scenario involving a drive-through order at a fast food restaurant. If the customer does not receive the order within a specific time period, the customer receives a coupon. The timer task would be started when the customer arrives. Once the configured time period had been exceeded, the timer would start a subprocess that caused the “Bag Order” task to include a discount coupon in the bag. This example is designed for process modeling only and might not simulate.

Notification broadcasters and receivers

- Specialized tasks that enable communication while a process is running:
 - A notification broadcaster publishes notifications.
 - A notification receiver listens for notifications and produces output.
- Sends information between executing processes:
 - A process can use a notification to send information to one of its already-executing subprocesses.
 - A subprocess can use a notification to send information to its parent process.
- Notifications allow information to be transmitted from and to multiple parties without having to explicitly draw connections between the senders of the information (the broadcasters) and the receivers of the information (the receivers).
- A notification is received by any notification receiver within its scope (specified subprocesses) that is listening for that notification.
 - There is at least one receiver for each broadcaster.
 - Usually there will be one broadcaster and several receivers.
 - Or several broadcasters (sending the same notification) and several receivers.

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Figure 4-36. Notification broadcasters and receivers

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Notes:

Example:

- A task might cause a notification to be broadcast when it has run out of items to process.
- This type of notification would probably have a timestamp attribute to keep track of the time when it finishes its work.
- Depending on what elements you have set, another task can receive the notification and take action, passing on more work to the first task, or perhaps causing the process to end.



Notification broadcaster

- A specialized task that publishes a notification
 - When broadcast, any notification receiver within its scope receives it.
 - Having a receiver within your process is not sufficient unless that receiver is listening.
 - Ensure that the notification receiver starts before the notification broadcaster.
- A notification broadcaster is associated with a previously defined notification.
 - A scope can be set for a notification. If no scope is set, it is unlimited.
 - No scope means the notification is received by any notification receiver in any process that contains the process where the notification broadcaster is located.
 - A scope can be set so notification is received only by notification receivers in the local process or subprocess.

Attributes - Notification Broadcaster | Simulation Control Panel | Errors (Filter matched 23 of 23 items)

General | Cost and Revenue | Duration | Inputs | Outputs | Resources

▼ General information

This section provides general information about this notification broadcaster.

Name
Notification Broadcaster

Description
Broadcaster Description

Notification
[Browse...]

Scope
Scope is unlimited

Processing cost
The expense incurred every time this task runs.
Literal value: 50

Processing time
The length of time required to finish this task.
Literal value: 0 Days, 1 Hours, 5 Minutes

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Figure 4-37. Notification broadcaster

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Notes:



Notification receiver

- A specialized task that listens for and receives notifications
 - After receiving a notification, the receiver produces an output.
- A notification receiver starts listening for notifications when it is triggered by a task or other element.
- Notifications received can be restricted by setting conditions on the receiver.
 - The condition can check the value of an attribute in the notification.

Attributes - Notification Receiver | Simulation Control Panel | Errors (Filter matched 23 of 23 items) | T

General | Cost and Revenue | Duration | Inputs | Outputs | Resources

▼ General information

This section provides general information about this notification receiver.

Name
Notification Receiver

Description
The expense incurred every time

Notification
Browse...

Processing cost
Literal value
50

Processing time
The length of time required to finish this task.

Literal value

Days 0 **Hours** 1 **Minutes** 5

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Figure 4-38. Notification receiver

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Notes:



Observer

- A specialized task that watches a process and its associated repositories
 - Initiates a flow when a certain condition becomes true
 - An observer can start a flow when a repository exceeds a threshold value.
- Two kinds of observers:
 - An observer that initiates a flow once
 - It starts a flow when a repository is full and then terminates.
 - An observer that initiates a flow every time a specific condition occurs
 - It starts a flow each time an item out of stock task is reached.
 - Observe continuously is selected
- The observer is only responsible for observing the condition and producing an output when the condition is satisfied.
 - It cannot produce data and does no other work.

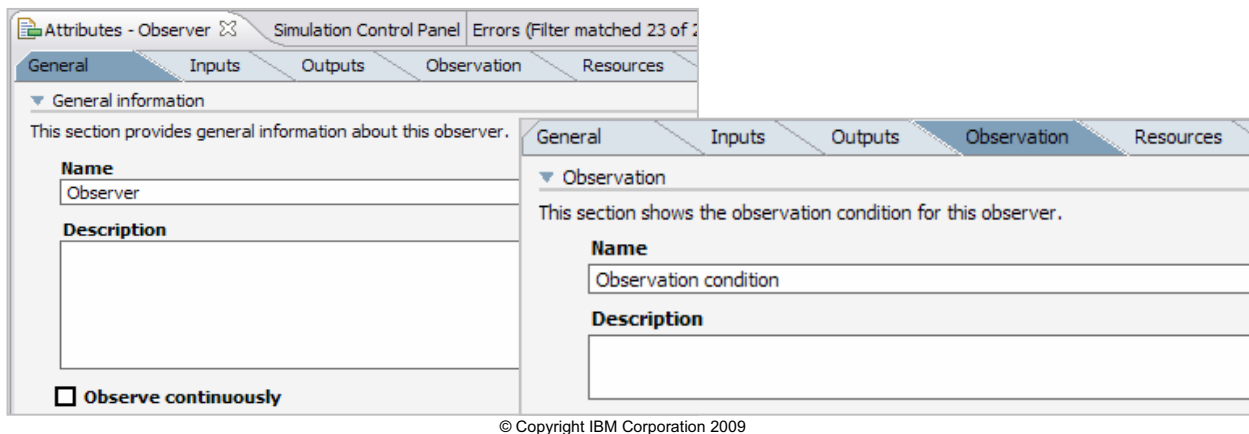


Figure 4-39. Observer

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Notes:

Checkpoint

1. What is the definition of a business item?

2. What is the difference between a business service and a service in Modeler?

3. What is a business service object?

4. When defining timetables, how do you specify lunch break or vacation time for the resources?

5. What is the difference between roles and resources?

6. What is the function of a classifier?

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Figure 4-40. Checkpoint

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Notes:

Write your answers here:

- 1.
- 2.
- 3.
- 4.
- 5.

Unit summary

Having completed this unit, you should be able to:

- Explain the following components:
 - Business items
 - Business services
 - Business service objects
 - Resources
 - Organizations
 - Classifiers
- Explain the timer, map, broadcaster, receiver, and observer
- Implement advanced attributes for tasks
- Add labels and colors

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Figure 4-41. Unit summary

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Notes:

Checkpoint solutions

1. What is the definition of a business item?
Business data, documents, work products, or physical commodities that are transformed by the process
2. What is the difference between a business service and a service in Modeler?
Business services are model element representations of WSDL (Web Services Definition Language) files.
Services are external processes executed outside the organization
3. What is a business service object?
Business service objects are model element representations of XSD (XML schema) files.
4. When defining timetables, how do you specify lunch break or vacation time for the resources?
Use the exemption periods to cover lunch hours, vacation time, and weekends.
5. What is the difference between roles and resources?
Roles add additional characteristics to resources while resources represent the people, equipment, or material used to perform a task.
6. What is the function of a classifier?
Classifiers enable users to categorize tasks and other process elements for decision-making or process optimization, and it can be shown on the diagram for visual analysis or on tables for numerical analysis.

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Figure 4-42. Checkpoint solutions

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Notes:

Exercise overview

In this exercise, you will:

- Create data structures
- Define organization units
- Create roles
- Associate colors with roles
- Create timetables
- Creating resources
- Assign roles and organization units to tasks
- Assign costs and durations
- Assign classifiers

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Figure 4-43. Exercise overview

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Notes:

Unit 5. Completing the process model

What this unit is about

This unit describes the completion of a process model.

What you should be able to do

After completing this unit, you should be able to:

- Describe the Swimlane diagram
- Explain a sub-process
- Explain loops
- Define decision attributes
- Add documentation
- Clean up a diagram

How you will check your progress:

- Checkpoint
- Lab exercises

References

None

Unit objectives

After completing this unit, you should be able to:

- Describe the Swimlane diagram
- Explain a sub-process
- Explain loops
- Define decision attributes
- Add documentation
- Clean up a diagram

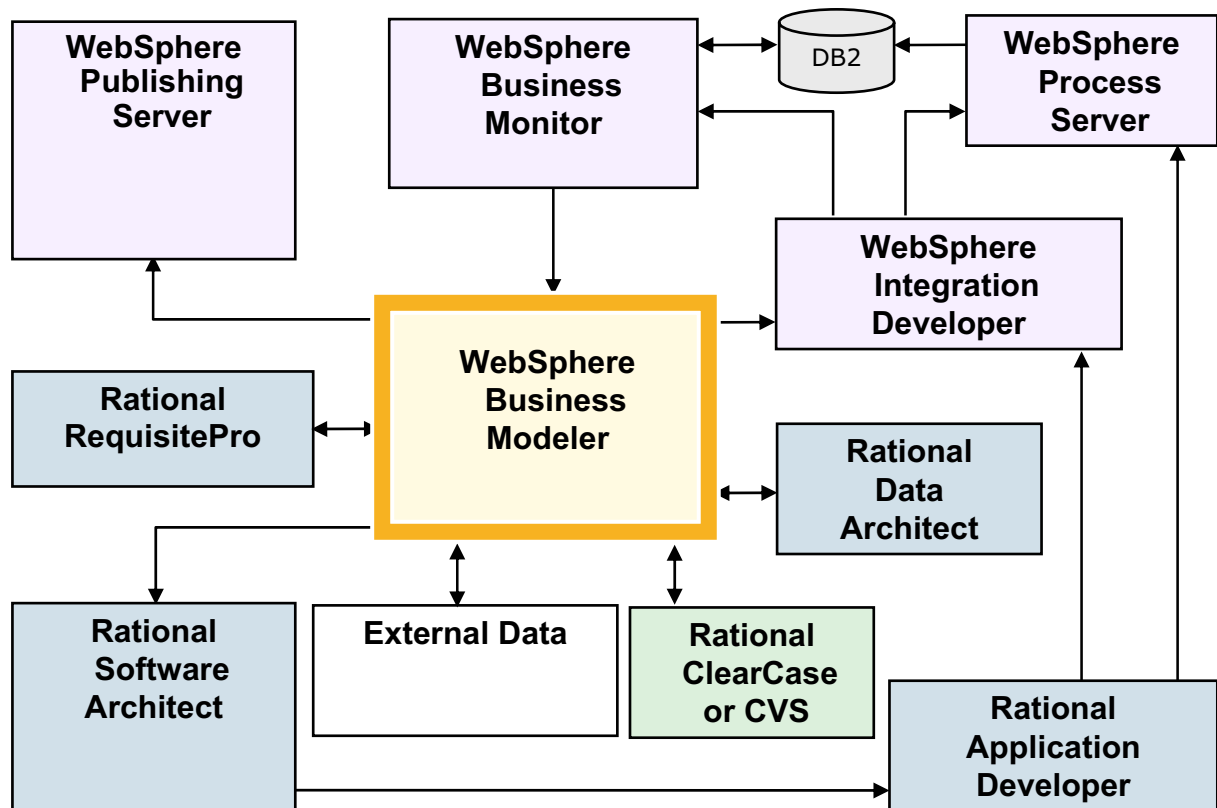
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Figure 5-1. Unit objectives

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Notes:

Completing a business process model



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Figure 5-2. Completing a business process model

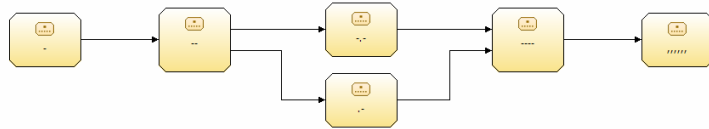
WB284 / VB2841.0

Notes:

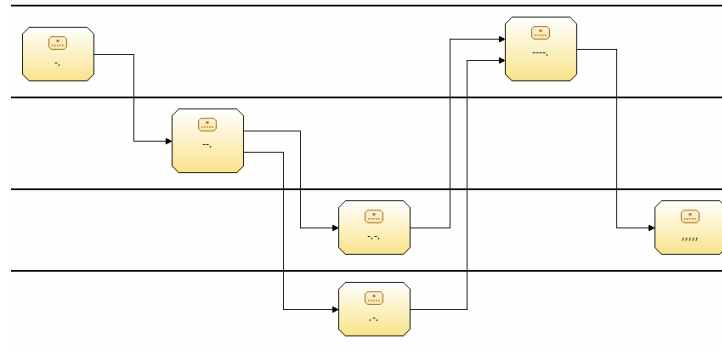
Free-form and swimlane

- Free-form
 - Set or change the position of elements within the diagram in any location
- Swimlane
 - Arranges the process flow in a way that allows you to focus on the interaction between:
 - Roles
 - Organization units
 - Locations
 - Classifiers
 - Individual resource definitions
 - Bulk resource definitions

Free-form



Swimlane



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Figure 5-3. Free-form and swimlane

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Notes:

Modeling techniques

- Modeling techniques are similar in both layouts.
- Open a new model in either layout.
- Both layouts allow you to:
 - Add elements from the palette or from the project tree
 - Copy, paste, or delete elements on the diagram
 - Select elements in the diagram to display and edit their properties
 - Auto-layout
- Switch the layout as needed from the process editor.
- Printed diagrams are based on the layout that is displayed at the time of printing.
- The process editor opens a diagram using the layout the diagram had when it was last closed.

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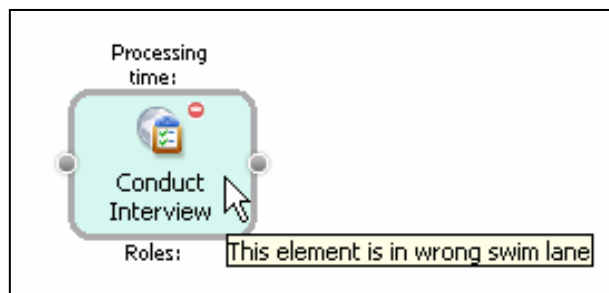
Figure 5-4. Modeling techniques

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Notes:

Additional swimlane capabilities

- Additional functions
 - Change the size of the swimlane manually or automatically.
 - Manually drag the swimlane boundary.
 - Swimlane will automatically resize to accommodate new elements.
 - Insert, move, and remove swimlanes.
 - Unassigned elements are placed at the bottom in an unassigned row.
 - An unassigned row can be closed if there are no unassigned elements.
- Additional warning
 - An incorrect swimlane indicator
 - Small red barred circle
 - Appears when the element's attributes do not match the swimlane



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Figure 5-5. Swimlane additional capabilities

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Notes:

Swimlane layout determined by analytical needs

- The layout determines in which row the elements are placed.
 - The purpose of arranging element in rows is to easily identify unnecessary hand-offs between rows.
 - Aids in resolving bottlenecks and redundancies
- Different layouts can be used at different levels
 - High level may be best represented in freeform
 - Middle level may use layouts by location or organization
 - Low level can use role based layouts to show all handoffs
- The swimlane layout by classifier is unique.
 - You choose one classifier to use for the layout.
 - The swimlanes are based on its classifier values.

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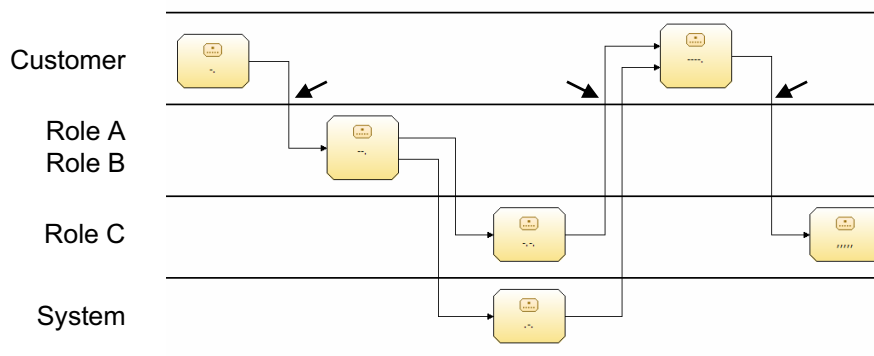
Figure 5-6. Swimlane layout determined by analytical needs

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Notes:

Different processes require different analysis

- Customer row can be moved to the top to see touch points
- Multiple resources working on a task share one lane
 - Each individual resource working alone has its own row and is also in a row for the shared work
- Assign a system to a role to show hand offs between roles and systems
 - Systems are typically assigned as resources for cost purposes, but you cannot put resources and roles on the same diagram



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Figure 5-7. Different processes require different analysis

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Notes:

Loop (1 of 2)

- A loop is a repeating sequence of activities contained within a process
- Three types of loops available:
 - For loop
 - Repeats the same sequence of activities a **specified** number of times
 - While loop
 - Repeats while some condition is satisfied, testing its condition at the **beginning** of every loop
 - The loop may never run
 - Do-while loop
 - Repeats while some condition is satisfied, testing its condition at the **end** of the loop
 - The loop will run at least once

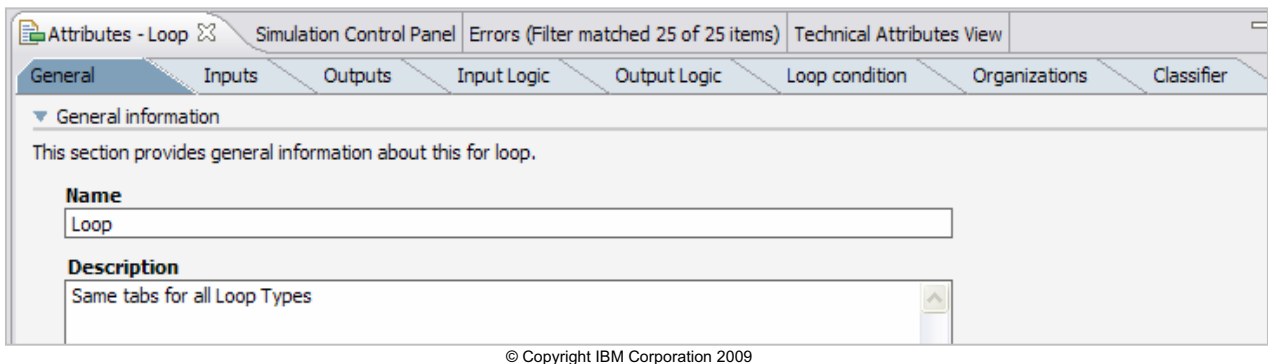


Figure 5-8. Loop (1 of 2)

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Notes:

Loop (2 of 2)

- Inputs into loops do not work the same way as inputs into subprocesses.
 - Inputs to loops can be checked by the loop condition, but they cannot be used as inputs by elements within the body of the loop.
 - To pass data into a loop, use a repository.
 - Use a local repository if you intend to use an expression.
 - Expression Builder cannot access global repositories

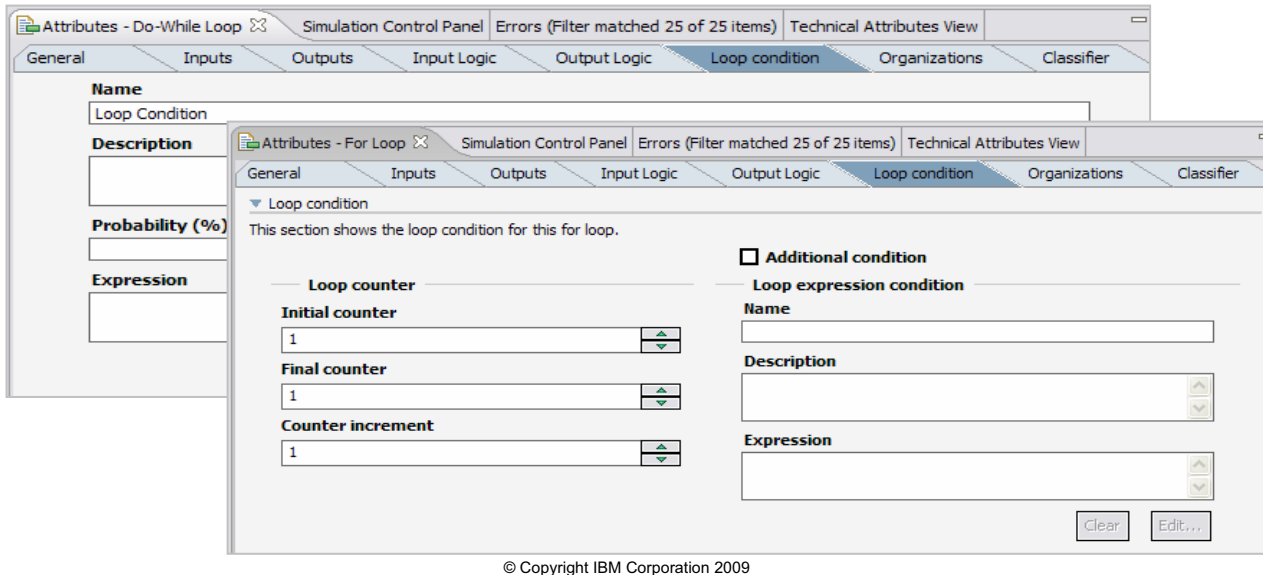


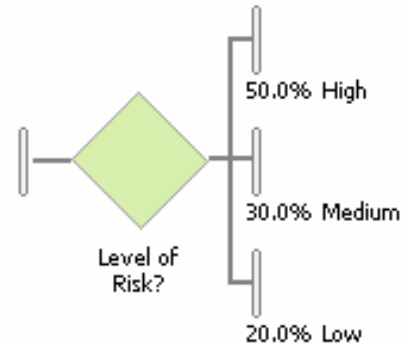
Figure 5-9. Loop (2 of 2)

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Notes:

Decisions: detailed attributes (1 of 4)

- Detailed attributes complete the definition of the decision
 - Simple and multiple attributes are similar
- Will use a multiple-choice decision example to explain attributes
 - Example: changing process flow based on level of risk
 - Probabilities can be displayed on the output branches
 - Names can be assigned to the output branches
- General
 - Inclusive check box
 - One or more outputs
 - The combination of outputs is determined by the expression



Attributes - Level of Risk? Simulation Control Panel Errors (Filter matched 23 of 23 items)

General Inputs Outputs Input branches Output branches

▼ General information

This section provides general information about this decision.

Name
Level of Risk?

Description
Changes the flow based on level of risk

☐ Inclusive

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Figure 5-10. Decisions: detailed attributes (1 of 4)

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Notes:

Detailed attributes complete the definition of the decision.

- Simple and multiple attributes are similar.

A multiple-choice decision example will explain attributes.

- Example -- changing process flow based on level of risk:
 - Probabilities can be displayed on the output branches
 - Names can be assigned to the output branches

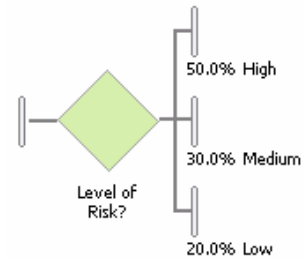
General:

- Inclusive check box:
 - One or more outputs.
 - The combination of outputs is determined by the expression.

Decisions: detailed attributes (2 of 4)

- Inputs: one or more business items

General	Inputs	Outputs	Input branches	Output branches
▼ Input settings				
This section provides detailed information about the inputs.				
Name	Associated data	Minimum		
Input:2	Business item 1	1		



- Outputs
 - The outputs match the inputs; no work is performed by a decision
 - One set of outputs for each branch
- Input branches

General	Inputs	Outputs	Input branches	Output branches
▼ Output settings				
This section provides detailed information about the outputs.				
Name	Associated data	Minimum		
Output	Business item 1	1		
Output:2	Business item 1	1		
Output:3	Business item 1	1		

General	Inputs	Outputs	Input branches	Output branches
▼ Input branches				
This section shows the input branches for this decision.				
Name	Contents			
Input Branch	Input:2			

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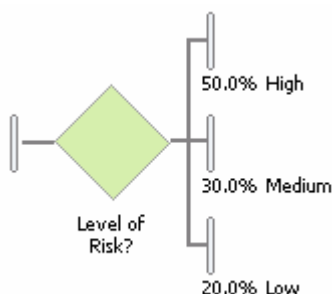
Figure 5-11. Decisions: detailed attributes (2 of 4)

WB284 / VB2841.0

Notes:

Decisions: detailed attributes (3 of 4)

- Output branches
 - Name the branches
 - Specify the probabilities
 - Create the expression to control the flow for each output path
 - Edit opens an expression editor



General Inputs Outputs Input branches **Output branches**

This section shows the output branches for this decision.

Name	Contents	Condition	Probability (%)
High	Output	High	50
Medium	Output:2	Medium	25
Low	Output:3	Low	25

▼ Details

Name
High

Contents

Name	Associated data	Minimum	Maximum
Output	Business item 1	1	1

Decision Branch Condition

Name
High

Description

Expression
'Process Catalog.Process 1.Level of Risk?.Input:2.Attribute' is equal to "High"

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Figure 5-12. Decisions: detailed attributes (3 of 4)

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Notes:

Decisions: detailed attributes (4 of 4)

The screenshot displays the IBM Modeler V6.2 Expression Editor. The interface is divided into several sections:

- Expression Tree:** A tree view on the left showing a binary expression structure. The root is a 'Binary expression' node, which contains a 'Process Catalog.Process 1.Level of Risk?.Input:2.Attribute' node, followed by the text 'is equal to', and then a 'High' node.
- Expression name:** A text field containing the value 'High'.
- Expression description:** An empty text field.
- Expression text:** A text field containing the expression: `'Process Catalog.Process 1.Level of Risk?.Input:2.Attribute' is equal to "High"`.
- Expression Composer - Root expression:** This section contains three main components:
 - First term:** A dropdown menu currently showing 'Modeling artifact'.
 - Operator:** A dropdown menu with options: '--Select operator--', 'is equal to' (which is highlighted), and 'is not equal to'.
 - Second term:** A dropdown menu currently showing 'Text'.
- First term details:** A tree view on the bottom left showing the hierarchy: 'Process Catalog' > 'Process 1' > 'Repository' > 'Level of Risk?' > 'Input:2' > 'Attribute'.
- Second term details:** A text field containing the value 'High'.

A yellow callout box titled 'Expression editor' is overlaid on the bottom right, containing the following bullet points:

- Create the expression by selecting available choices
- Expression displayed in the expression tree
- Must "apply" to save and see the expression text
- Can create complex expressions

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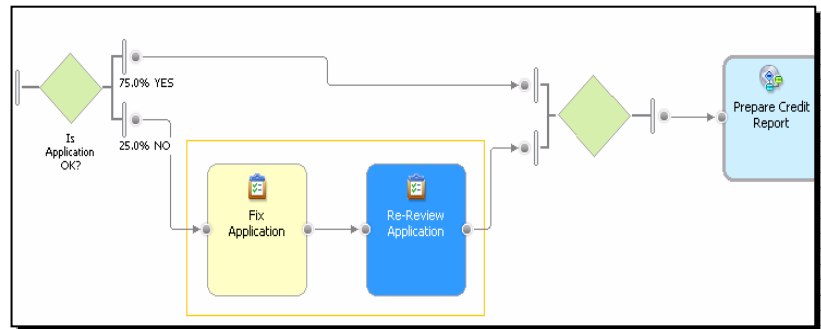
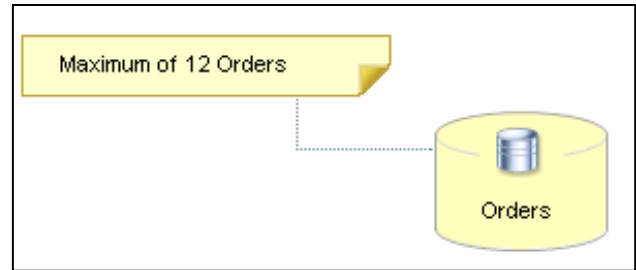
Figure 5-13. Decisions: detailed attributes (4 of 4)

WB284 / VB2841.0

Notes:

Additional process documentation (1 of 2)

- Add annotations to diagrams
 - Add anywhere in a process, structure, or structure definition diagram
 - Attach annotations to any element
- Create rectangles on diagrams
 - To group or highlight the selected elements for presentation or viewing purposes
 - Informal, visual grouping of activities without requiring the creation of a new process



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Figure 5-14. Additional process documentation (1 of 2)

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Notes:

Additional process documentation (2 of 2)

- Add URL or Web address in description
 - Links can be added to a description field in an editor or in the Attributes view.
 - To open link, highlight the link, right-click, and select **Browse**

Name
Task
Description
Task Description Here www.ibm.com

- Attach files to elements
 - Files can be attached to process elements that are displayed in the Project Tree.
 - The files become part of the element to which they are attached.
 - After attaching, a file can be opened by clicking the name.

Attached files
The files listed below are included as part
 Attached File.doc

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Figure 5-15. Additional process documentation (2 of 2)

WB284 / VB2841.0

Notes:

Organizing the diagram (1 of 3)

- Using gridlines to create the diagram
 - The gridlines can be toggled on and off as needed.
 - New elements will be laid on the diagram where you put them.
 - Dragging elements will snap to the grid.
- Auto-layout allows the system to arrange the diagram
 - Select Auto-layout Left to Right
 - Arranges the layout of the diagram so that the direction of flow goes from left to right, and cleans up any overlapping nodes or connections.
 - In swimlane layout, this also moves all elements to their correct swimlanes, creating new swimlanes if necessary.
 - Auto-layout will undo any user layout.
- Aligning multiple elements in a diagram
 - Align two or more elements so that your diagram is easier to read and looks more presentable
 - Select elements to align and select from the alignment options
 - Last element selected is the anchor point

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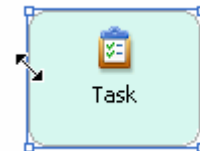
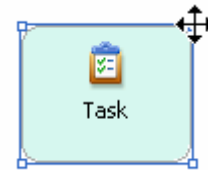
Figure 5-16. Organizing the diagram (1 of 3)

WB284 / VB2841.0

Notes:

Organizing the diagram (2 of 3)

- Moving or resizing elements using the keyboard
 - Arrow keys on the keyboard can be used to move or resize
 - Select the element you want to move.
 - Press the Period key (.) until the cursor changes to the desired pointer.
 - Use the arrows keys to move or resize the element.
 - Press the Enter key to accept the change.
 - Toggle grid on editor must be off



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Figure 5-17. Organizing the diagram (2 of 3)

WB284 / VB2841.0

Notes:

Organizing the diagram (3 of 3)

- Fix overlapping and crossing connections
 - Uncross gateway connectors by moving the input or output nodes up or down
 - Move decision or fork branches
 - Select, right-click, and select Modify Output Branches Order
 - Retains any values assigned to it and its connections to other process elements
 - Move merge or join input branches
 - Select, right-click, and select Modify Input Branches Order
 - Retains any values assigned to it and its connections to other process elements

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Figure 5-18. Organizing the diagram (3 of 3)

WB284 / VB2841.0

Notes:

Making the diagram more meaningful

- Displaying labels
 - Labels can be displayed on the diagram to show information associated with process elements.
 - Labels are a convenient way to view important attributes.
 - Labels contain the attribute information.
 - Two labels can be specified (top and bottom) for any element.
- Adding colors
 - Colors can be added to resource definitions, roles, organization units, locations, and classifier values.
 - When you then associate these items with elements in the process diagram (such as tasks), you can color-code the diagram to see at a glance which elements are associated with specific values.
- Color-coding by classifiers
 - After creating classifiers and assigning classifier values to process elements, you can color-code the diagram based on the classifiers.

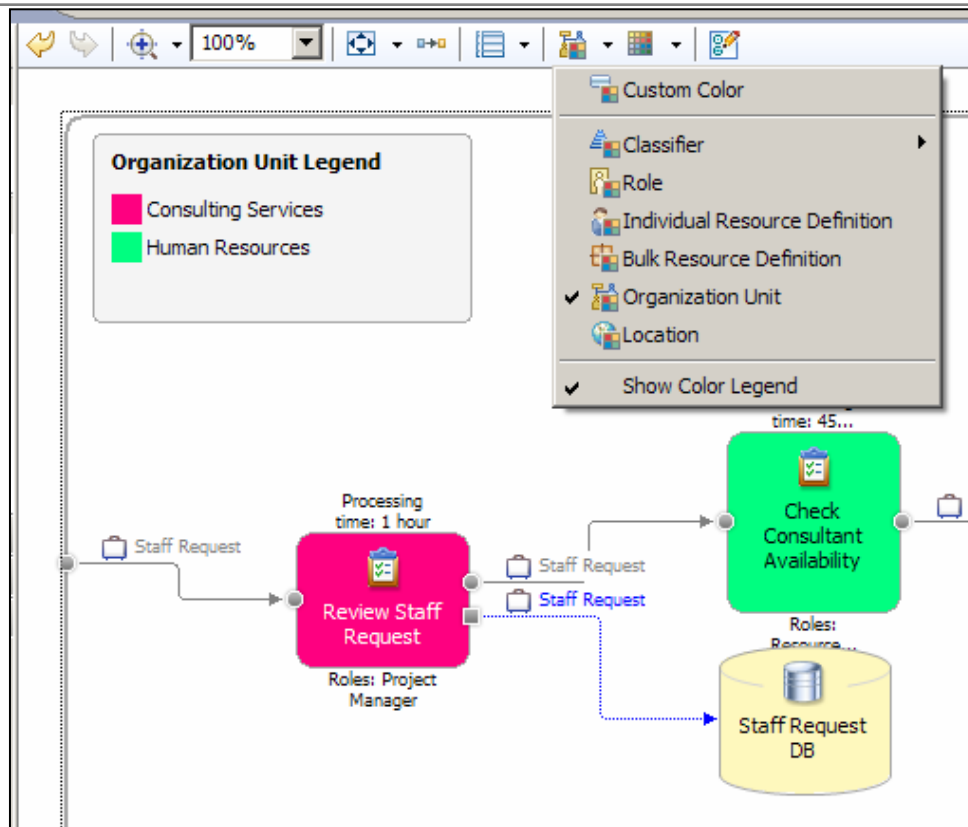
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Figure 5-19. Making the diagram more meaningful

WB284 / VB2841.0

Notes:

Process activity coloring



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Figure 5-20. Process activity coloring

WB284 / VB2841.0

Notes:

User defined colors allow Modeler to color process elements using any criteria the user defines.

Legend indicates what each color represents.

To color-code your diagrams, you can add colors to resource definitions, roles, organization units, locations, and classifier values. When you associate these items with elements in diagrams, such as tasks, the color coding lets you see at a glance which elements are associated with specific values. You must use the **Color by** tool in the toolbar to do this color association.

For example, if you add blue to the Customer Service Representative role and green to the Supervisor role, you can use color-coding in the Process editor to see how many tasks each role performs.

To color-code an item, complete the following steps:

Open the Color window using one of the following methods:

Double-click the resource definition, role, organization unit, location, or classifier value to open it in an editor. Click the **Documentation** tab at the bottom of the editor and select **Assigned color**. Click the color button.

Right-click the element in the Project Tree view and select **Specify Color**. This method allows you to specify a color but does not show you any previously-selected color.

In the Color window, click an existing color, or click **Define Custom Colors** and create a new color. Click **OK**.

Checkpoint

1. What is the advantage of displaying a process diagram in swimlane layout?

2. What is the relationship between a local process and a subprocess?

3. In which loop does it repeat while some condition is satisfied and it tests its condition at the end of the loop?

4. Where in in Modeler do you specify a multiple-choice decision that has one or more outcomes?

5. What types of attachment can be added to the process model?

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Figure 5-21. Checkpoint

WB284 / VB2841.0

Notes:

Write your answers here:

- 1.
- 2.
- 3.
- 4.
- 5.

Unit summary

Having completed this unit, you should be able to:

- Describe the Swimlane diagram
- Explain a sub-process
- Explain loops
- Define decision attributes
- Add documentation
- Clean up a diagram

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Figure 5-22. Unit summary

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Notes:

Checkpoint solution

1. What is the advantage of displaying a process diagram in swimlane layout?
It arranges the process flow in such a way as to focus on the interaction between:
 - Roles
 - Organization units
 - Locations
2. What is the relationship between a local process and a subprocess?
A subprocess is a local process within another process
3. In which loop does it repeat while some condition is satisfied and it tests its condition at the end of the loop?
Do-while loop
4. Where in in Modeler do you specify a multiple-choice decision that has one or more outcomes?
Under the general tab of Decision attributes view, check the “Inclusive” box
5. What types of attachment can be added to the process model?
In addition to Web address, files such as html, documents,readsheet, or PDF can be attached

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Figure 5-23. Checkpoint solution

WB284 / VB2841.0

Notes:

Exercise overview

In this exercise, you will:

- Define decision expressions
- Switch to swimlane layout
- Add web addresses to description
- Attach a file to the process
- Use search and used by functions

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Figure 5-24. Exercise overview

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Notes:

Unit 6. Defining human tasks and forms

What this unit is about

This unit describes the Human Tasks and Forms.

What you should be able to do

After completing this unit, you should be able to:

- Define a human task
- Define escalation behavior
- Perform human task conversion
- Associate forms to human tasks
- Describe storyboards for human tasks with forms

How you will check your progress

- Checkpoint
- Lab exercises

References

None

Unit objectives

After completing this unit, you should be able to:

- Define a human task
- Define escalation behavior
- Perform human task conversion
- Associate forms to human tasks
- Describe storyboards for human tasks with forms

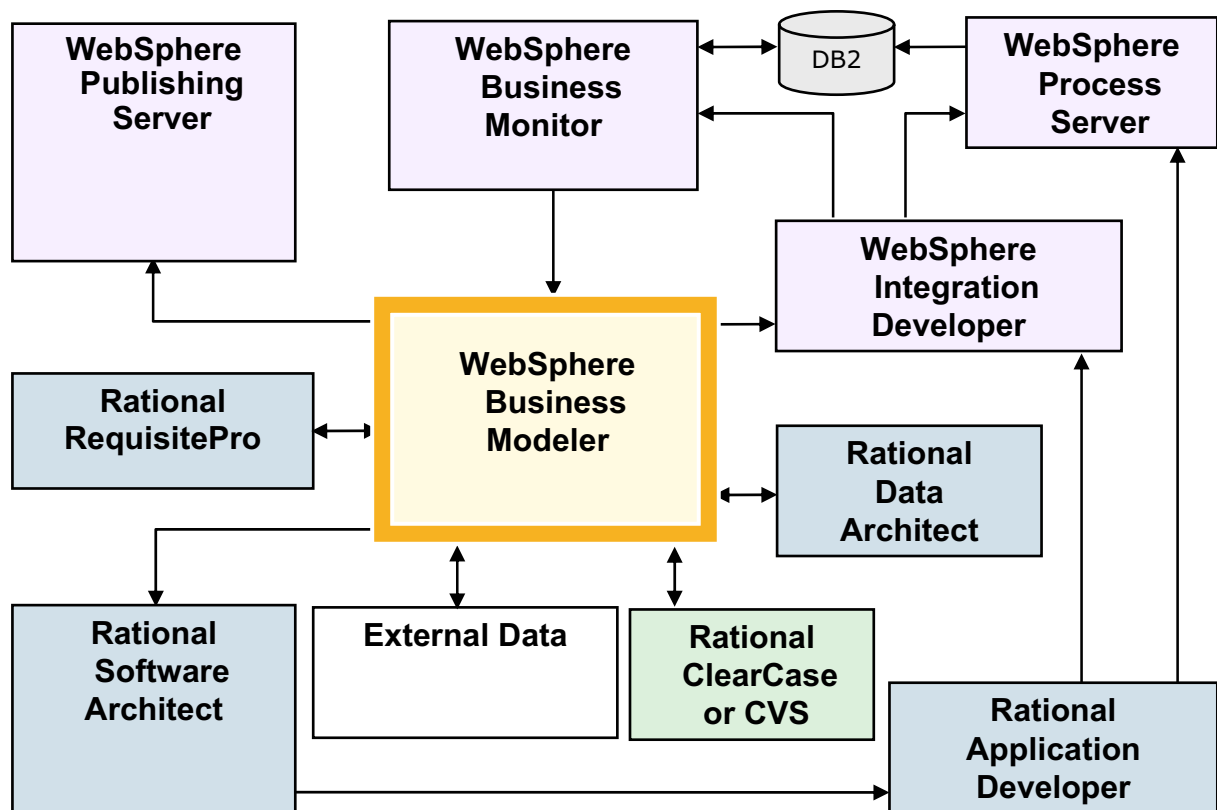
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Figure 6-1. Unit objectives

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Notes:

Defining human tasks and forms in Modeler



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Figure 6-2. Defining human tasks and forms in Modeler

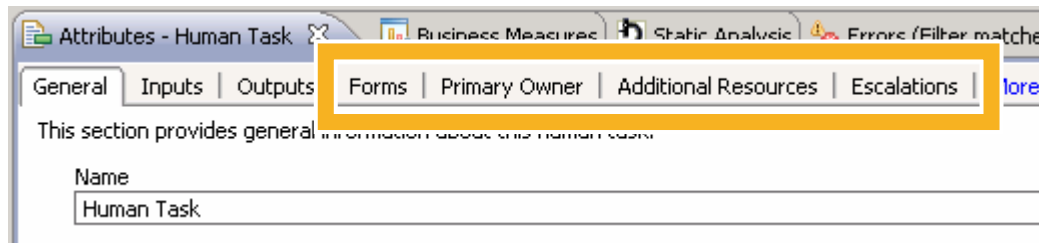
WB284 / VB2841.0

Notes:



Human task (1 of 2)

- Specialized task a system assigns to human for completion
 - Used to visually identify and document activities that must be performed by a person
- Can be global or local
 - Local task to local human task conversion
 - Local human task to global human task conversion
- All other normal task attributes
- Treated as a normal task during simulation
 - For process modeling and simulation purposes, you can specify the related cost, revenue, duration, additional resources, organizations, and classifiers



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Figure 6-3. Human task (1 of 2)

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Notes:

To capture the points at which human intervention is needed in a process, you can model the type of human task in which an automated system notifies a person of the need for action.

A human task is a visually distinct, specialized task that you can use to specify who should take responsibility for the activity and what escalation process should take place if the required person is unavailable for a certain amount of time. Because human tasks typically take longer than automated tasks and involve key activities (for example, approving a large loan), it often makes sense to track human tasks in a business activity monitoring application at run time. By adding human tasks to your process models, you can define the requirements for these tasks for both documentation and application development purposes.

In previous releases of WebSphere Business Modeler, if a role or individual resource definition of Person or Staff (or a subtype of these) was assigned to a task, a human task with a potential owner was created during the export to WebSphere Integration Developer. Now that WebSphere Business Modeler provides a human task element, this functionality

has been removed. If you still want these tasks to be exported to WebSphere Integration Developer as human tasks, you can convert them to human tasks or set their implementation type to human task prior to exporting them.

Human task (2 of 2)

- Associate electronic forms that are required for completion
 - Forms integrate the development of the process and the associated computer interface
 - Based on IBM Lotus Forms, Forms Designer and Forms Viewer
 - Created or imported forms can be reused by other human tasks
 - Forms are exported to Websphere Integration Developer
- Primary owner
 - Assign a particular role or resource to work on the task
 - Ability to define a criterion (known as a *Verb* in WebSphere Integration Developer) that determines the resource to be allocated as a primary owner
- Escalation
 - Define actions that should take place if some aspect of the human task does not complete on time
- Can have only one input criterion (set of inputs) and one output criterion (set of outputs)

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Figure 6-4. Human task (2 of 2)

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Notes:

Primary owner

- Mainly human resource assigned to the human task
- Based on role or individual resource
- Primary owner must be specified when creating human task
- Criteria consist of predefined attributes
- Ability to browse elements created in Modeler when specifying attribute values of criteria
 - Example: A user can browse organization units when specifying the attribute values for the Members by department name criterion

The screenshot shows the 'Primary Owner' tab in the IBM Modeler interface. The tab is highlighted with a yellow box. The form contains the following elements:

- Description:** A text area for describing the primary owner.
- Individual resource definition:** A radio button that is selected, with a text field containing 'Person' and a 'Browse...' button.
- Role:** A radio button that is not selected, with an empty text field and a 'Browse...' button.
- Time required:** A section with five spinners for Days, Hours, Minutes, Seconds, and Milliseconds, all set to 0. There is a 'Clear' button.
- People assignment criteria:** A section with a 'Name' dropdown menu set to 'None'.
- Attribute name and value:** Two text fields at the bottom for specifying attribute values.

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Figure 6-5. Primary owner

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Notes:

The primary owner is the main human resource assigned to the human task. To identify who should perform a human task, you must specify a primary owner for it. You can base the specification of the primary owner on a particular role or individual resource definition.

For process modeling purposes, you define the primary owner as a role or resource that is required to work on the human task and might be required for a particular amount of time. The primary owner that you specify is treated as a normal resource or role requirement during simulation.

If you plan to include the human task in a business process application, you can specify the criteria for assigning the human task at run time (the people assignment criteria). For example, you can specify that a person from a particular department be assigned the human task. To specify the people assignment criteria, you must use the Advanced or WebSphere Process Server modeling mode.

To base the people assignment criteria on an individual resource definition, you must use the predefined individual resource definition of Person or Staff either directly or as a parent template at some point in your resource definition hierarchy. The following options are

available for identifying the individual resource at run time: name, ID, group name, group ID, group attributes, department name, department ID, and multiple attributes. You can also specify that a person's manager be assigned the task using the name or ID of a person who works for that manager (using the **Personsmanagerbypersonname** or **PersonsmanagerbypersonID** options respectively).

If you base the people assignment criteria on a role, you can choose members of the same role that you selected for process modeling purposes or choose a different role for the runtime assignment of the primary owner.

In some cases, you can identify alternative (backup) owners for the human task as part of specifying the people assignment criteria. Although only one person actually does the task at run time, this option provides a way to ensure that someone is available to complete the human task.

When you define the values for the attributes of the people assignment criteria, you can either browse to a predefined value or type a value.

You can assign resources to a human task in addition to the primary owner. For example, if the primary owner requires a piece of equipment to complete the human task, you can model this additional resource requirement. However, the information about additional resources is not included in the export of the human task to WebSphere Integration Developer.

Primary owner: assignment criteria

- You can specify an individual to be assigned this task at run time, or you can specify a person with a particular role or from a particular organization to be assigned this task.

Primary Owner
This section displays the primary owner (the resources or staff role that will perform the task).

Description

☒ Individual resource definition

☐ Role

Time required Days Hours Minutes Seconds Milliseconds

People assignment criteria
You can specify an individual to be assigned this task at runtime, or you can specify a person with a particular role or from a particular organization to be assigned this task.

Name

Attribute name	Attribute value
*Name	Accounting
Name of alternative department 1	Finance
Name of alternative department 2	

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Figure 6-6. Primary owner: assignment criteria

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Notes:

Additional resources

- Additional resources can be assigned for simulation and analysis
- Additional resource information is not included in export

General Cost and Revenue Duration Inputs Outputs Forms Primary Owner **Additional Resources** Escal

▼ Role requirements
This section displays the list of role requirements.

Name	Role	Time required	Quantity	Unit of measure	Resource definition

Add Remove Edit Qualifications

▼ Individual resource requirements
This section displays the list of individual resource requirements.

Name	Individual resource	Time required

Add Remove

▼ Bulk resource requirements
This section displays the list of bulk resource requirements.

Name	Bulk resource	Time required	Quantity	Unit of measure

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Figure 6-7. Additional resources

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Notes:

You can assign addition resources to a human task in addition to the primary owner.

For example, if the primary owner requires a piece of equipment to complete the human task, you can model this additional resource requirement. However, the information about additional resources is not included in the export of the human task to WebSphere Integration Developer.

Escalation (1 of 2)

- A course of action that takes place when a human task does not reach an expected state within a specified time period
- Specify the condition under which the escalation should take place and the resulting action
- Use Advanced or WebSphere Process Server modeling mode
- Specify escalation notification type, such as e-mail notification
 - Define a criterion that determines the e-mail receiver
- Specify duration for repeating an escalation

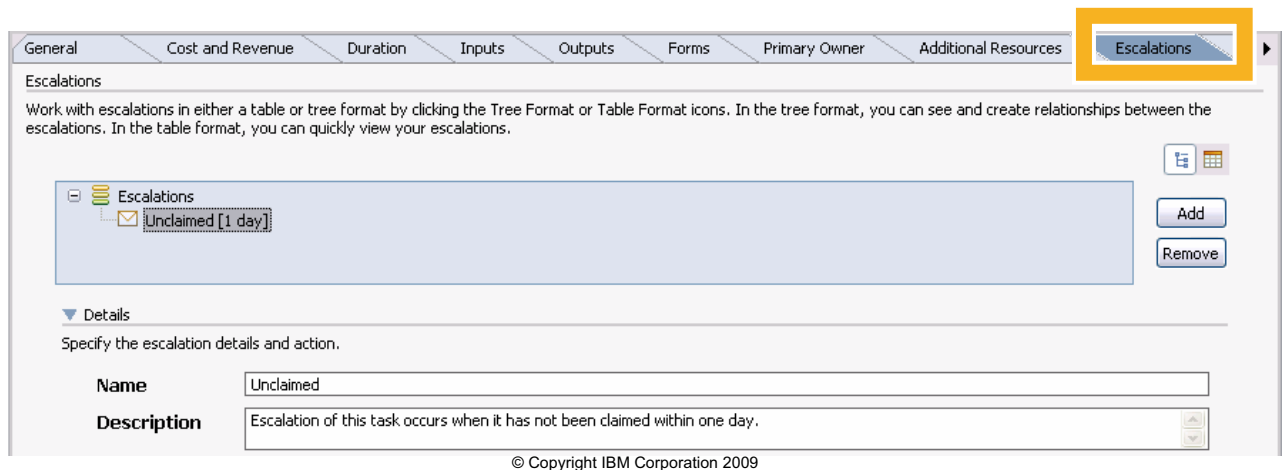


Figure 6-8. Escalation (1 of 2)

WB284 / VB2841.0

Notes:

An escalation is a course of action that takes place when a human task does not reach an expected state (for example, ended) within a specified time period.

The **Escalations** tab for a local human task enables business analysts to define details of how escalations are to be defined for the business process. Analysts can define the criteria for when escalation needs to occur, who is to receive the notification, and other details that can also be specified in WebSphere Integration Developer.

You can document an escalation by providing a name for and description of it. You can further define an escalation by specifying the condition under which the escalation should take place and the action that should result from it. To define an escalation condition and action, you must use the Advanced or WebSphere Process Server modeling mode.

If you add more than one escalation to a human task, you can create one or more escalation chains to define the required escalation path or paths. You chain escalations by specifying that one escalation follow after another escalation. You can create parallel escalation chains by giving the first escalation in two or more escalation chains the same activation state.

Escalation (2 of 2)

- Escalation format presented in table or tree format
 - In the table format, you can quickly review the escalations that you have created
 - In the tree format, you can see and create relationships between the escalations

Escalations

Work with escalations in either a table or tree format by clicking the Tree Format or Table Format icons. In the tree format, you can see and create relationships between the escalations. In the table format, you can quickly view your escalations.

Name	Description
<input checked="" type="checkbox"/> Unclaimed	Escalation of this task occurs when it has not been claimed within one day.

Add **Remove**

Details

Specify the escalation details and action.

Name

Description

If task is

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Figure 6-9. Escalation (2 of 2)

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Notes:

You have a choice of viewing your escalations in a table or tree format. In the table format, you can quickly review the escalations that you have created. In the tree format, you can see and create relationships between the escalations. For example, you can see different escalation chains in the tree format. And when you highlight the Escalations node in the tree and add an escalation, this escalation starts a new escalation chain. Using either format for adding escalations, you can define the relationships between escalations when you specify each escalation condition. To switch back and forth between the table and tree format, use the **Table Format** () and **Tree Format** () buttons.

You can define escalation conditions with an activation state of ready or claimed and with an expected state of claimed or ended. You select the activation state in the **If task is** drop-down list and the expected state in the **Task is not** drop-down list.

If the human task does not move to the expected state after a specific amount of time, the escalation action is initiated. You specify this time period using the **After** controls.

You can specify that the escalation take place after another escalation using the **After escalation** drop-down list. For example, you could provide the following condition for an

escalation called *Escalation 2*: If the human task is in the claimed state, escalate when the task is not ended after 30 minutes after *Escalation 1* has finished. You can also specify that the escalation start a new escalation chain by selecting **No previous escalation** in the **After escalation** drop-down list.

To set the escalation action, you identify who should be notified that the human task has not yet achieved the expected state, what kind of notification that person should receive, and how often the notification should be repeated. For example, you could choose to notify a manager that an incoming customer call has not been answered (claimed) within 5 minutes by adding an item to the manager's work list.

The other notification method that you could use is an e-mail message. You can create customized e-mail messages that you can reuse for other escalations for the same human task.

You can specify that the primary owner receive the notification about the state of the human task or select a different person or group to receive the notification. When you select the person to notify in the **Notify** field, you have the same assignment options that you do for selecting the primary owner. When you specify the value for options that include a person ID, you can choose the person based on the runtime context by selecting **Context variable**. If you choose to notify a group of people about the state of the human task, everyone in the group receives this notification.

If you choose to set up repeating notifications for an escalation, these notifications stop at run time when, for example, the human task moves to the expected state.

Modeling considerations

Simulation does not evaluate human tasks to determine the outcome of escalations.

The predefined documentation reports available for human tasks provide information about the process modeling details and specifications for global human tasks only. These reports do not provide information about the primary owner, escalations, or associated forms.

You can export human tasks from WebSphere Business Modeler and import them into WebSphere Integration Developer for inclusion in an application. However, you cannot export human tasks from WebSphere Integration Developer and import them into WebSphere Business Modeler to update your process model so that it stays in synch with an application under development.

Sample escalation (1 of 2)

General Cost and Revenue Duration Inputs Outputs Forms Primary Owner Additional Resources Escalations

Escalations

Work with escalations in either a table or tree format by clicking the Tree Format or Table Format icons. In the tree format, you can see and create relationships between the escalations. In the table format, you can quickly view your escalations.

Name	Description
<input checked="" type="checkbox"/> Unclaimed	Escalation of this task occurs when it has not been claimed within one day.

Add
Remove

Details

Specify the escalation details and action.

Name Unclaimed

Description Escalation of this task occurs when it has not been claimed within one day.

If task is Ready

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Figure 6-10. Sample escalation (1 of 2)

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Notes:

Sample escalation (2 of 2)

Escalate when	
Task is not	Claimed
After	Days: 1, Hours: 0, Minutes: 0, Seconds: 0, Clear
After escalation	No previous escalation
Escalation action	
Notify	Members by role name("Resource Manager") Select...
Notification type	<input checked="" type="radio"/> E-mail <input type="radio"/> Item on work list
E-mail message	Default e-mail message Edit...
<input type="checkbox"/> Repeat notification every	Days: , Hours: , Minutes: , Seconds: , Clear

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Figure 6-11. Sample escalation (2 of 2)

WB284 / VB2841.0

Notes:

Escalation chains and parallel escalations

- If adding more than one escalation to a human task, escalation chains can be used to define the required escalation paths
 - Escalations are chained by specifying that one escalation follows after another escalation.
 - Triggered at a time relative to the previous escalation
- Parallel escalations are triggered at a time relative to the starting point

Escalations

You can work with escalations in either a table or tree format by clicking the Tree Format or Table Format icons. In the tree format, you can see and create relationships between the escalations.

Details

This section shows the detailed information for each escalation.

Name	Escalation 2
Description	Escalation 2 description
If task is	Ready

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Figure 6-12. Escalation chains and parallel escalations

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Notes:

IBM Lotus Forms

- Integrate IBM Lotus Forms into your modeling projects
- Forms represent the user interfaces that people use to complete a human task
- Forms can be imported into Modeler
- New forms can be created in Modeler
- Forms can be associated or disassociated with existing human tasks
- New human tasks can be created based on forms
- Form data elements can be specified or based on task inputs and outputs

The screenshot displays a web-based form titled "Disability Report - Appeal" within a browser window. The form is organized into several sections: "Personal Information" (Name: Jane Doe, Phone: (123) 122-4567, Address: 1234 Some Street, City: Some City, State: TX, ZIP: 78738-1111), "Medical Records" (List each Hospital/Clinic, include your next appointment), and "Previous Visits" (Inpatient stays, Outpatient visits, Emergency room visits). The form includes various input fields, checkboxes, and date pickers. A copyright notice at the bottom reads "© Copyright IBM Corporation 2009".

Figure 6-13. IBM Lotus Forms

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Notes:

IBM Lotus Forms Designer is a separate product. It is optional, and is not packaged with WebSphere Business Modeler V6.2.

Forms represent the electronic forms that people use to complete a human task.

Any forms that you import or create are displayed in the Processes catalog of Project Tree view with the form icon () and can be reused with any human task. When you import a form, two types of elements are added in the Project Tree view: A form element in the Processes catalog and one or more business service objects (XSD files) in the Business service objects catalog. Because the business service objects contain the underlying data structure of imported forms, you must keep the business services objects generated from the import to use the forms.

You can either create a form for which you specify the data elements or base the form elements on the inputs and outputs of a local or global human task. If the human task has no inputs or outputs specified, the form contains no data elements. You can create forms that you do not associate with a human task but still export to WebSphere Integration

Developer using the WebSphere Process Server modeling mode for inclusion in an application.

Whether you specify the data elements for a new form or generate them from a human task, you can no longer edit the data elements in WebSphere Business Modeler after you create the form.

When you associate a form with a human task, the task inputs, outputs, or both inputs and outputs are based on the form data. If the form data does not match the inputs or outputs of the human task, the form data replaces the task inputs or outputs.

You have the option of associating forms with a global human task when you create the human task. You can also specify the forms that you want to associate with a human task after you create it. If you generate a form from a human task, you automatically associate the form with that human task.

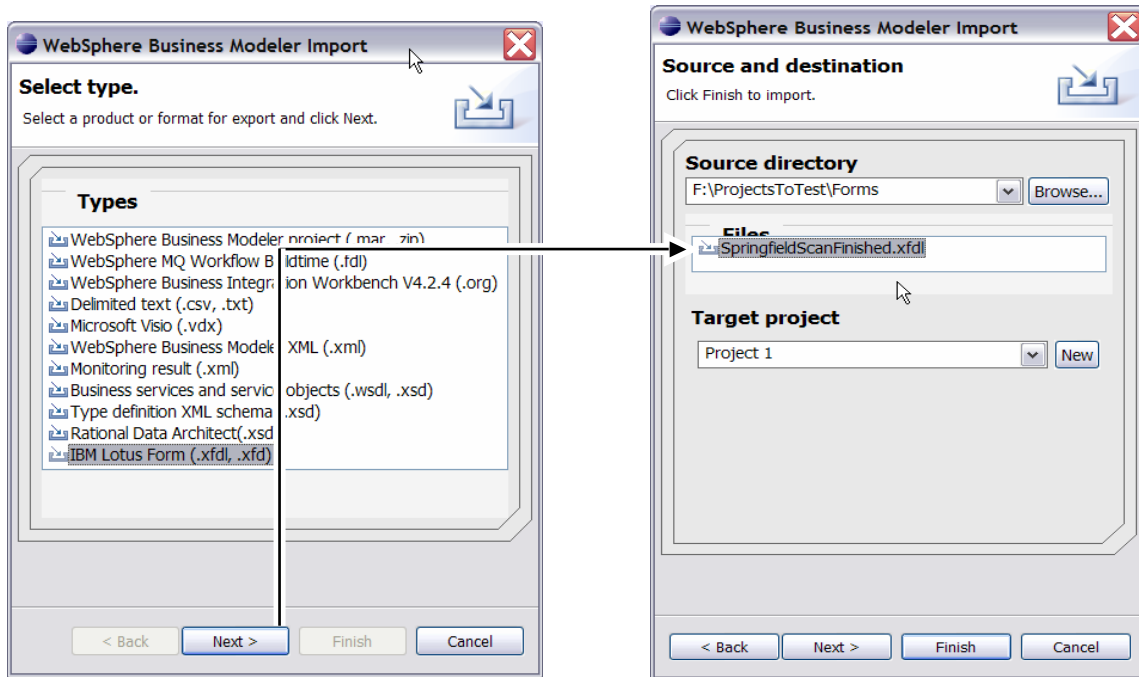
Although you can specify the data elements for a form using WebSphere Business Modeler, you must use a form editor if you want to design the layout of the form. This means that you need to install Lotus Forms Designer to lay out your forms and Lotus Forms Viewer to preview and print them. You can then use these tools in WebSphere Business Modeler as if they were WebSphere Business Modeler editors.

When you open a form (using the Lotus Forms Designer editor), each group of form elements is displayed in a pane (surrounded by a dotted frame). For example, if you included a business item as a form element, you can see each business item attribute as a separate form element inside a pane named after the business item. When you lay out your form, you can move form elements around inside the pane to which they belong, but you must keep them inside that pane. You can also change the labels for form fields.

To keep the data elements in your human tasks and forms in synch, do not add or remove form elements when you lay them out. If you need to add, remove, or change the data type of data elements, recreate the form instead.

Importing forms into Modeler (1 of 2)

- Business service objects created based on form data
- New form located in Project Tree under process catalog



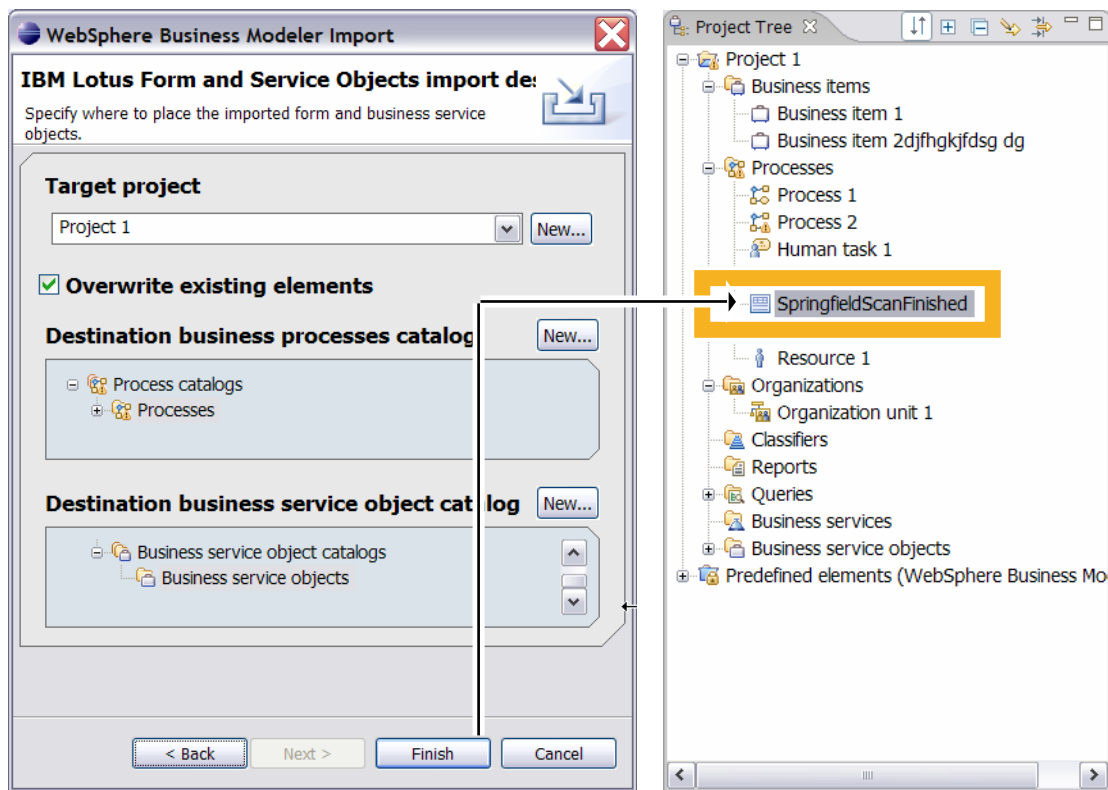
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Figure 6-14. Importing forms into Modeler (1 of 2)

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Notes:

Importing forms into Modeler (2 of 2)



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Figure 6-15. Importing forms into Modeler (2 of 2)

WB284 / VB2841.0

Notes:

Creating a new form (1 of 7)

Two ways to create a form:

- Created within process catalog
 - Blank (with no data) if used for layout purpose
 - With data based on business items
- Created from human task
 - Blank (with no data) if human task has no input/output data
 - With data based on human task's input/output data
 - Newly created forms associated with human task

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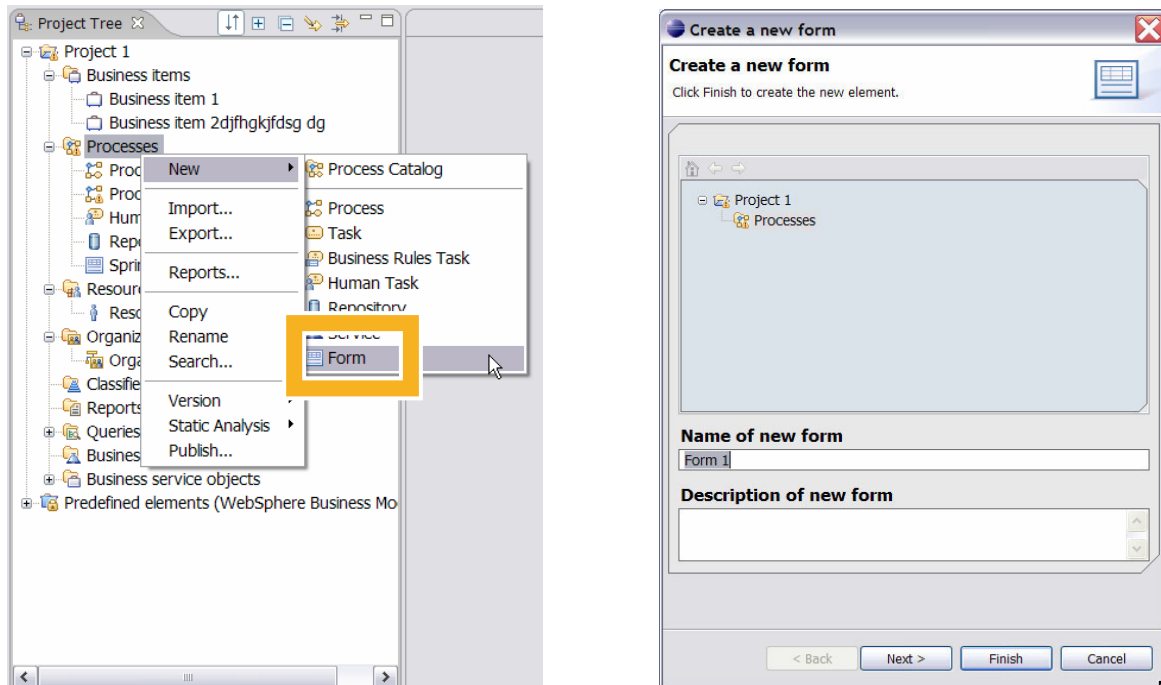
Figure 6-16. Creating a new form (1 of 7)

WB284 / VB2841.0

Notes:

Creating new form (2 of 7)

- From process catalog



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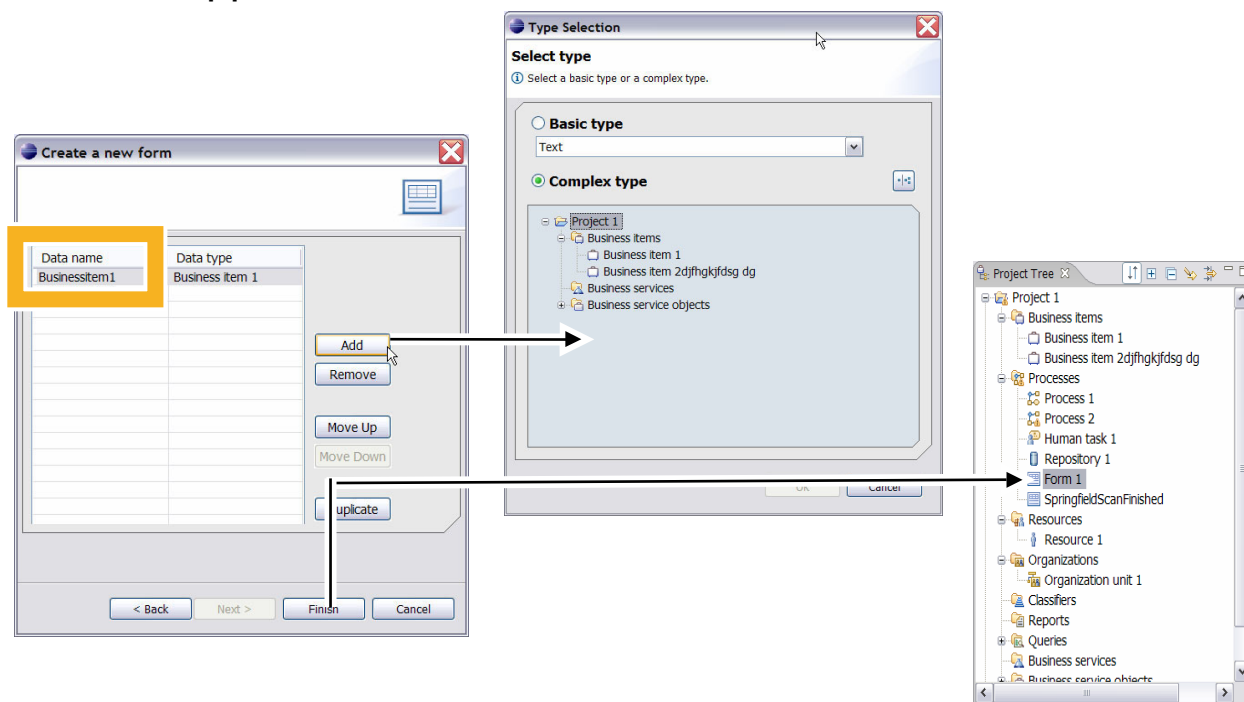
Figure 6-17. Creating new form (2 of 7)

WB284 / VB2841.0

Notes:

Creating new form (3 of 7)

- Data name column presents the business item name as it would appear on the form



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Figure 6-18. Creating new form (3 of 7)

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Notes:

Creating new form (4 of 7)

- From global human task

Create a form

Click Finish to create the new element in the location selected below.

Project 1
Processes

Name of form
Form 5

Description of form

Finish Cancel

Forms

You can associate a form with a human task as the task input, the task output, or task input and output.
If the human task inputs or outputs do not match the form data, they will be replaced by the form data.

☒ Use the input form as the output form

← New... Browse... Edit... Disassociate

Field name	Type

Output form New... Browse... Edit... Disassociate

Field name	Type

Errors (Filter matched 1 of 26 items) Simulation Control Panel

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Figure 6-19. Creating new form (4 of 7)

WB284 / VB2841.0

Notes:

Creating new form (5 of 7)

- From global human task

Human task 1

Forms

You can associate a form with a human task as the task input, the task output, or both task input and output. If the human task inputs or outputs do not match the form data, they will be replaced by the form data.

☐ Use the input form as the output form

Input form: **New...** **Browse...** **Edit...** **Disassociate**

Field name	Type
Businessitem1	Business item 1

Output form: **New...** **Browse...** **Edit...** **Disassociate**

Field name	Type

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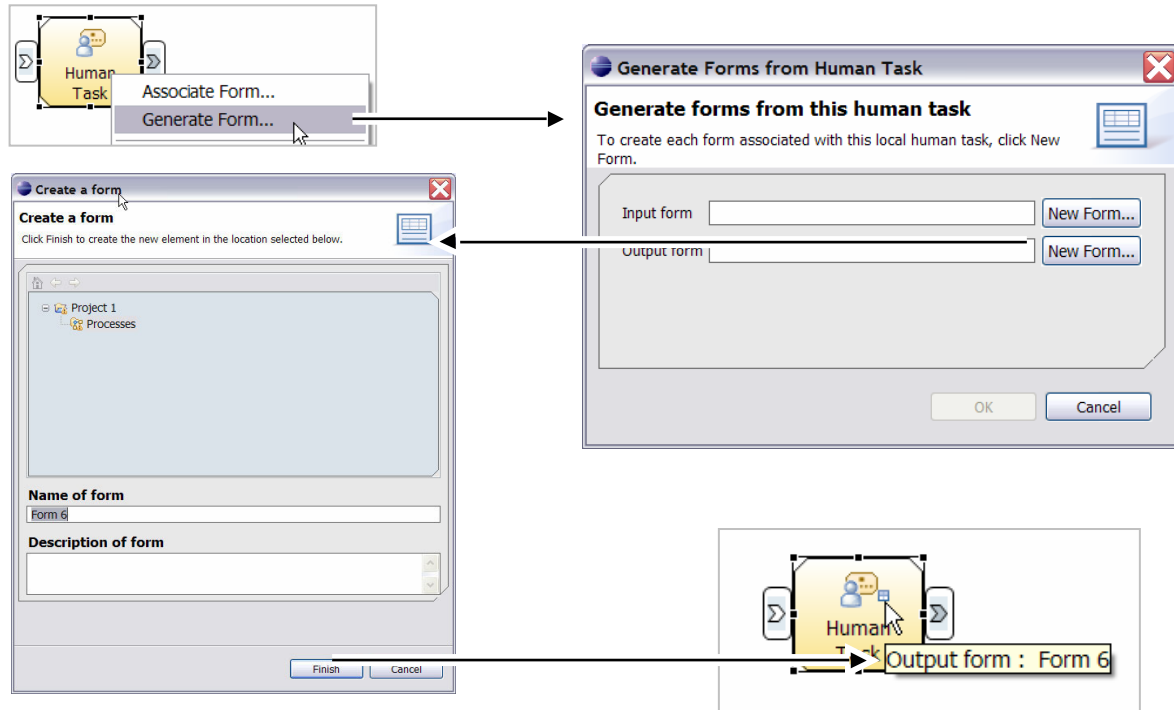
Figure 6-20. Creating new form (5 of 7)

WB284 / VB2841.0

Notes:

Creating new form (6 of 7)

- From local human task: Context menu in the process editor



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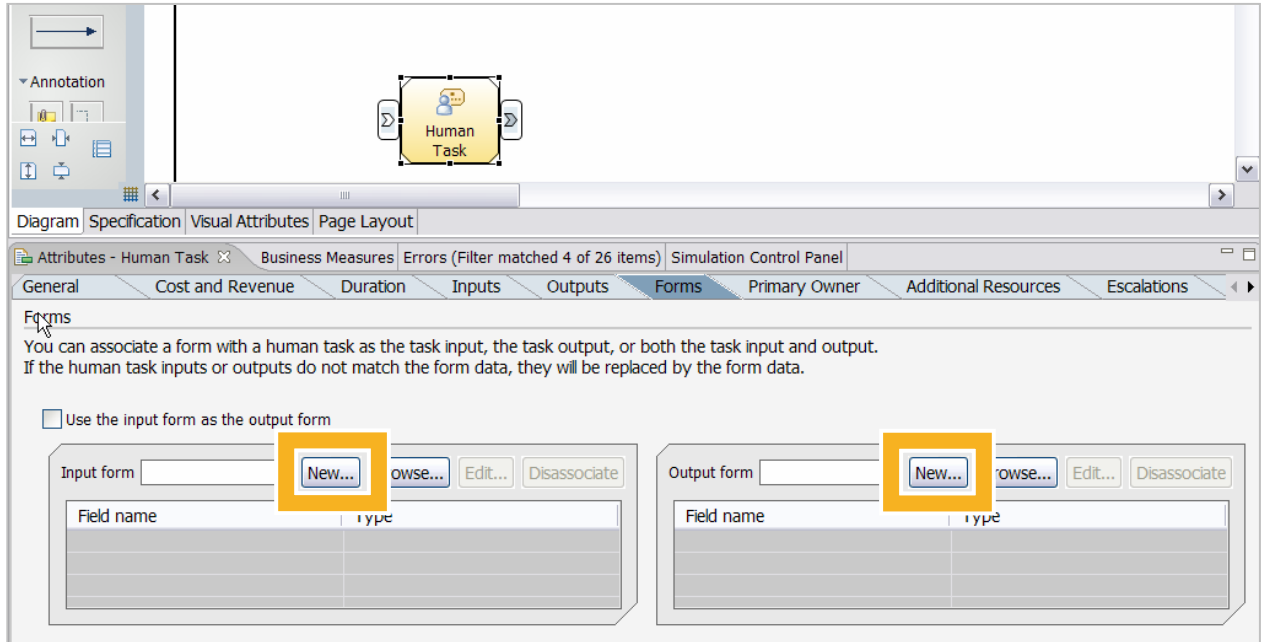
Figure 6-21. Creating new form (6 of 7)

WB284 / VB2841.0

Notes:

Creating new form (7 of 7)

- From local human task: Forms tab in the attributes view



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Figure 6-22. Creating new form (7 of 7)

WB284 / VB2841.0

Notes:

Associating form with human task

- Form can be associated as either an input form or an output form, or both
- Human task inputs are generated based on input form data
- Human task outputs are generated based on output form data
- Human task inputs and outputs are not removed when form is disassociated

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Figure 6-23. Associating form with human task

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Notes:

Associating form with global human task

- Form can be associated with global human task on the Forms page

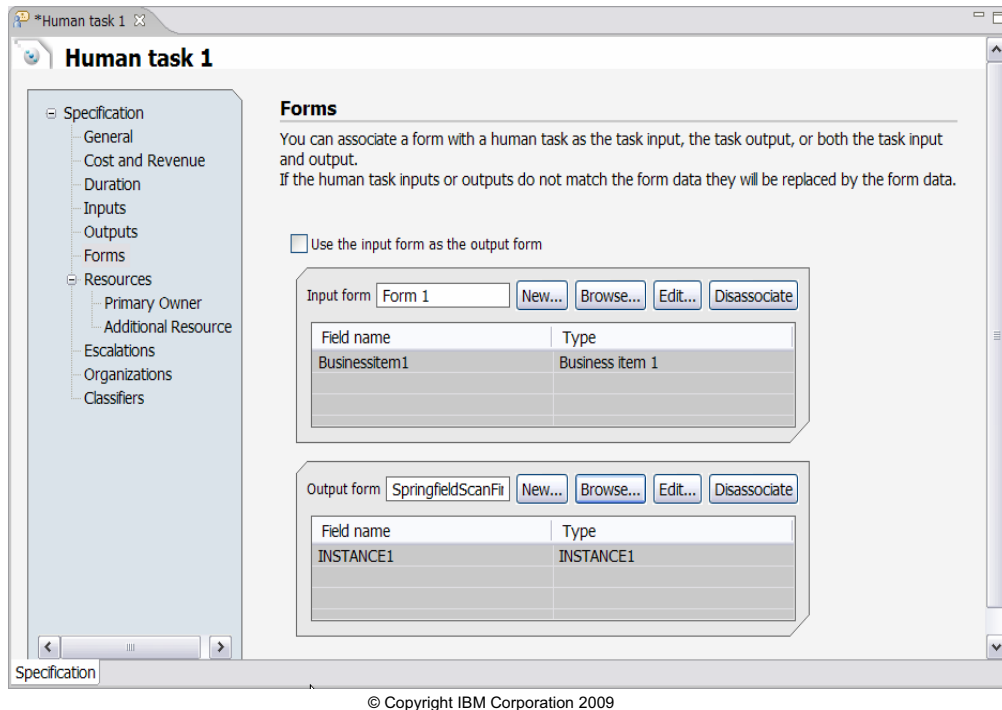


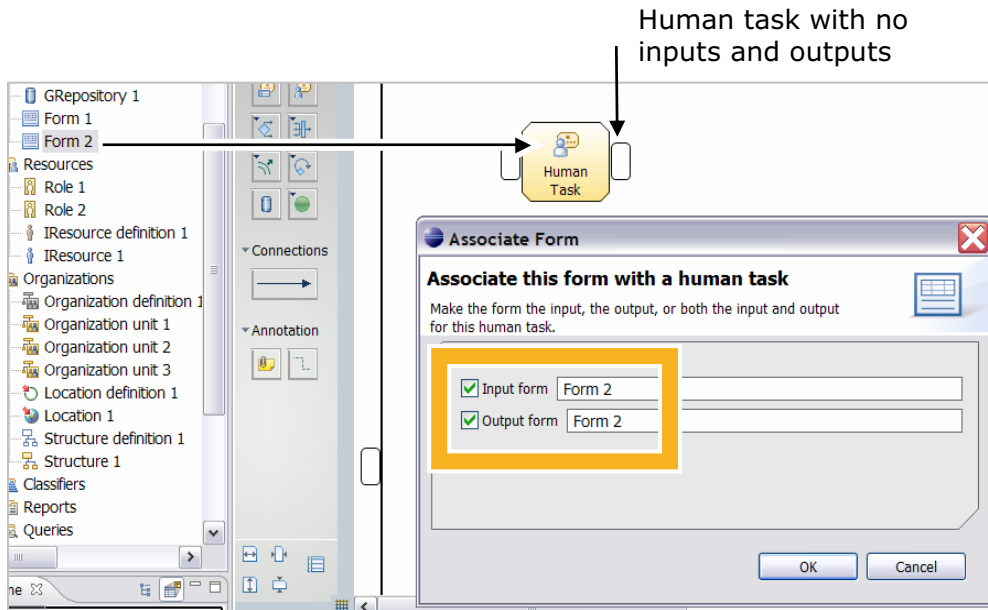
Figure 6-24. Associating form with global human task

WB284 / VB2841.0

Notes:

Associating form with local human task (1 of 4)

- Form can be associated with local human task by dragging it from the Project Tree and dropping it onto a local human task in the process editor or on the Forms tab of the attributes view



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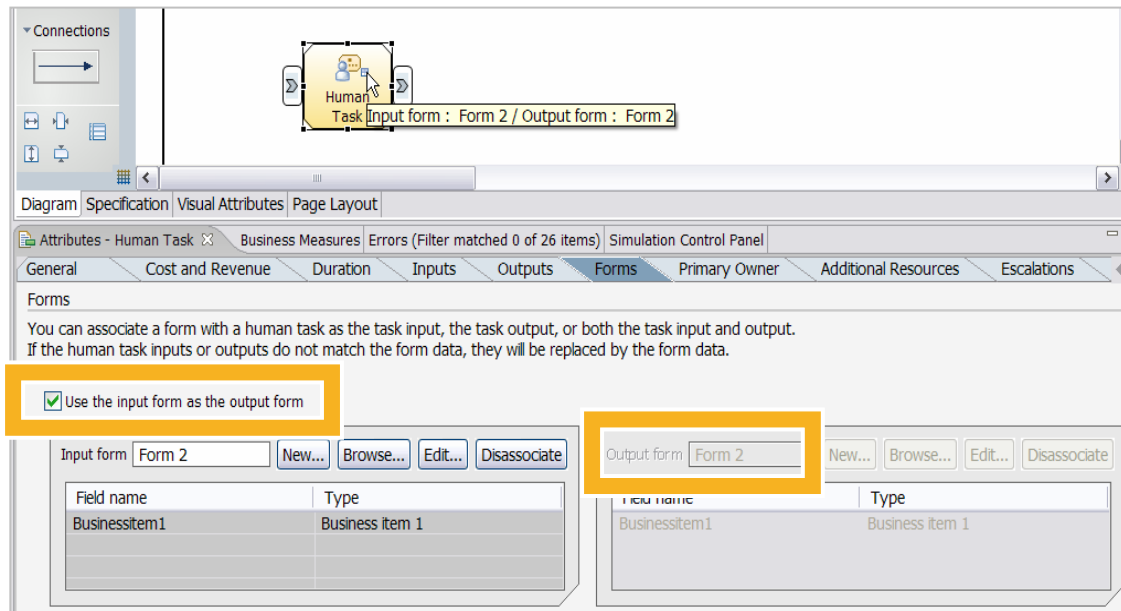
Figure 6-25. Associating form with local human task (1 of 4)

WB284 / VB2841.0

Notes:

Associating form with local human task (2 of 4)

- Human task input and output generated based on form data



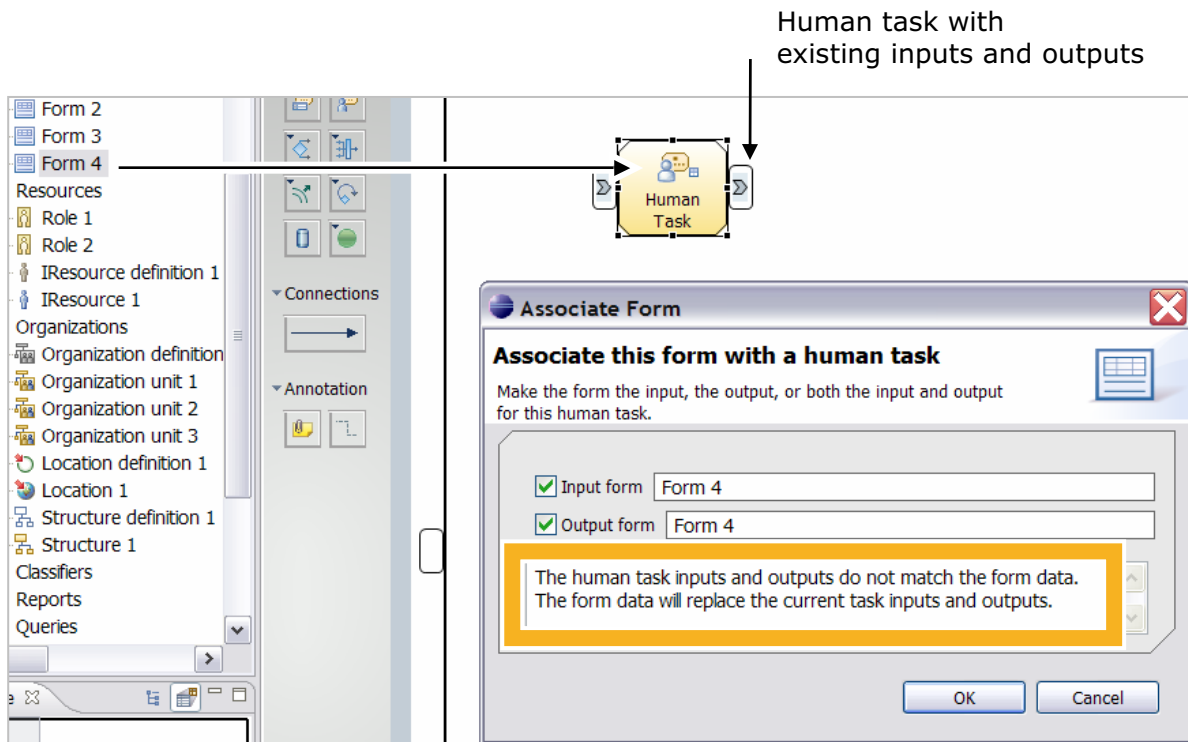
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Figure 6-26. Associating form with local human task (2 of 4)

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Notes:

Associating form with local human task (3 of 4)



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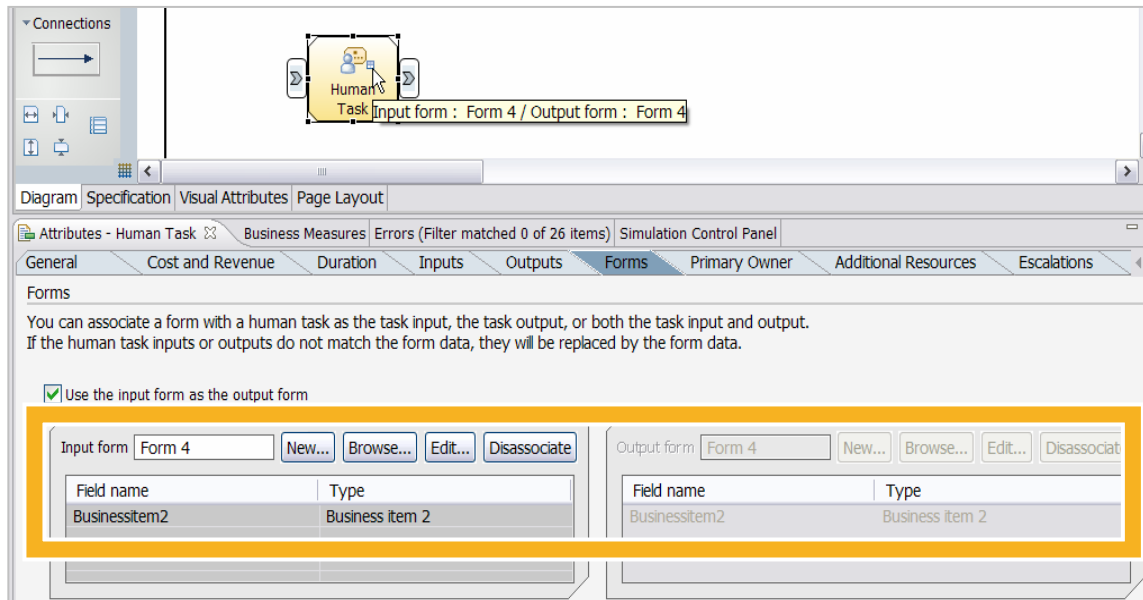
Figure 6-27. Associating form with local human task (3 of 4)

WB284 / VB2841.0

Notes:

Associating form with local human task (4 of 4)

- Human task inputs/outputs replaced by form data



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Figure 6-28. Associating form with local human task (4 of 4)

WB284 / VB2841.0

Notes:

Creating human task based on form

- Global human task creation wizard allows specifying forms
 - Creation of human task will be based on this form
- Drag a form from the project onto a process editor to create a local human task
- Inputs and outputs created on a new human task are based on form data

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Figure 6-29. Creating human task based on form

WB284 / VB2841.0

Notes:

Creating global human task based on form

- Global human task creation

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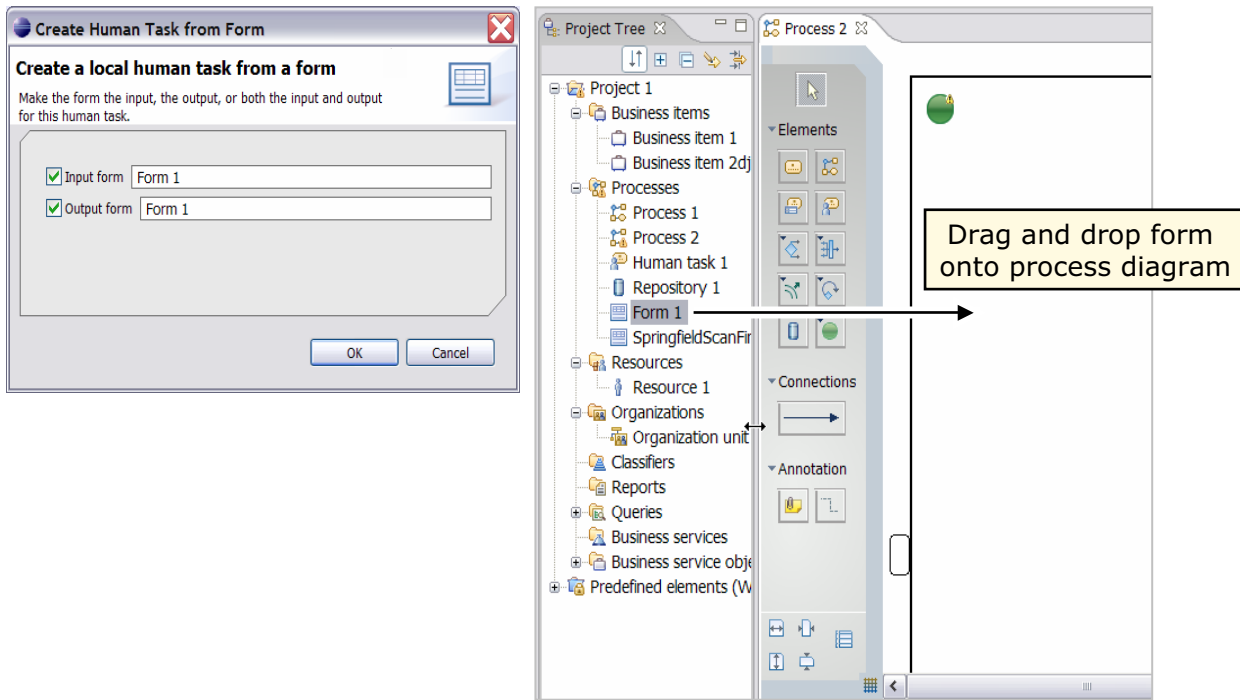
Figure 6-30. Creating global human task based on form

WB284 / VB2841.0

Notes:

Creating local human task based on form

- Local human task creation



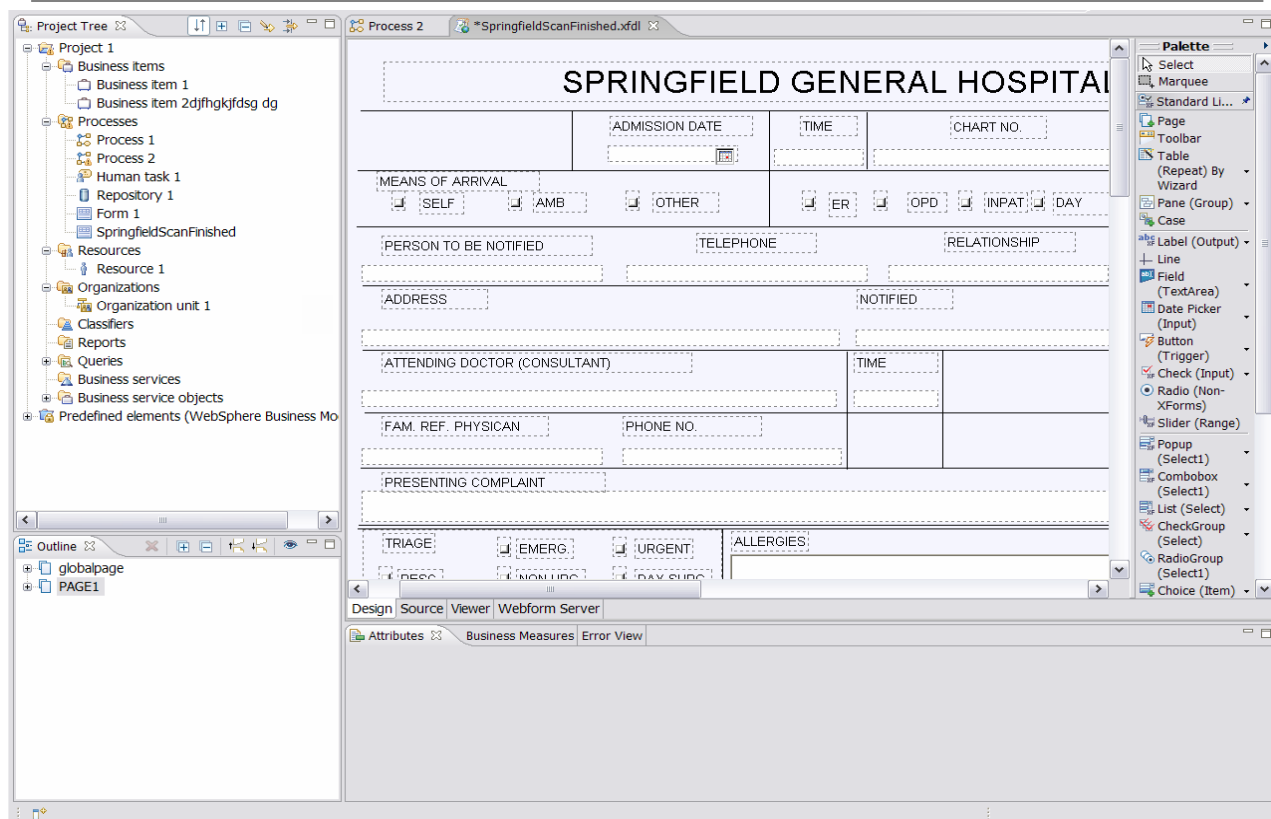
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Figure 6-31. Creating local human task based on form

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Notes:

Lotus Forms Designer in WebSphere Business Modeler



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Figure 6-32. Lotus Forms Designer in WebSphere Business Modeler

WB284 / VB2841.0

Notes:

Storyboards for human tasks with forms

- Create storyboards to step through sequences of human tasks in a process
- Demonstrates the flow of a new human-centric process
- Provide stakeholders with a preview of the forms that are involved in the completion of each human task
- Allows user to view the forms associated with a human task side-by-side with the process diagram
- Mimics the task owner's interaction with the form
- The process must have at least one human task with a form associated with it

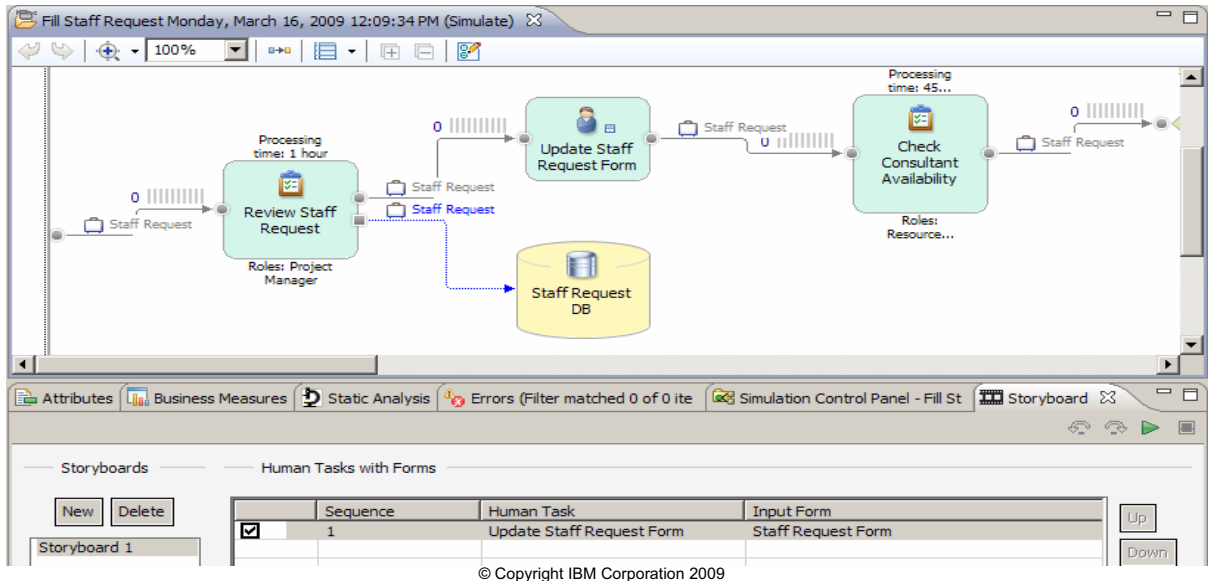


Figure 6-33. Storyboards for human tasks with forms

WB284 / VB2841.0

Notes:

In order to enable forms interaction during simulation, the following criteria must be met:

You must have Lotus Forms Viewer Version 3.0.1 installed.

Lotus Forms Viewer is launched with an Eclipse-embedded browser using Internet Explorer on Windows.

The browsers recommended for use with Lotus Forms Viewer are as follows:

- Microsoft Internet Explorer 6.0 Service pack 1, on the Microsoft Windows 2000 Service pack 4
- Microsoft Internet Explorer 6.0 or Microsoft Internet Explorer 7 for Microsoft Windows XP Service pack 2
- Microsoft Internet Explorer 7 on Windows Vista

To storyboard a process involving human tasks with forms, complete the following steps.

1. Take a snapshot of the process. Although storyboarding is technically not the same as simulation, you create your storyboards from a simulation profile. If you do not already

have a simulation profile created, create a simulation profile for the process by right-clicking the process in the project tree and selecting **Simulate**. This creates both a simulation snapshot and an initial simulation profile.

2. Open the simulation profile in the Simulation editor by right-clicking the simulation profile in the Project tree view and selecting **Open**, or by double-clicking the simulation profile.
3. Click the **Storyboard** tab.
4. Click **New**. A new storyboard is added to the list of storyboards, and the Human Tasks with Forms table lists all the human tasks in the selected process that are associated with forms.
5. By default, the first new storyboard that you create for a process is called "Storyboard 1", the second is called "Storyboard 2", and so on. To change the name of a storyboard, click the storyboard name in the list and type a new name.
6. You can change the set of tasks that are included in your storyboard, and you can change the sequence in which the tasks are displayed in the storyboard:
 - To exclude a human task from the storyboard, deselect the task by clicking in the first column of the table.
 - To change the sequence of the human tasks, click a task and use the **Up** and **Down** buttons to move the task up or down in the sequence.
 - Note that any changes that are made to the storyboard, for example changes to the sequence of human tasks, are not reflected in the process itself.
7. Click the **Play** button to begin stepping through the storyboard. Focus is put on the first task in the diagram that is included in the storyboard. Next to the diagram, the output form associated with that task opens up inside an embedded Lotus Forms Viewer.

Note: The form fields are editable, so you can enter values in the fields. Lotus Forms Viewer requires that you click enter or move the cursor into another field in the form after entering data in order for the data to persist in the form for reviewing later. Data values that have been entered in the form for a task are stored with the task and can be viewed later in this storyboarding session, or in a later storyboarding session if you save the simulation profile.
8. Move to the next task in the storyboard using the forward button. You can move to the previous task in the specified sequence using the backward button. You can also jump to any task in the storyboard by double-clicking the task in the table.
9. The storyboard continues running until you stop it by clicking the **Stop** button.
10. You can create several different storyboards for a process, including a different set of human tasks or a different sequence of human tasks in each storyboard, by clicking the **New** button. You might want to do this if you are using the storyboards to demonstrate different paths a process might take, creating a different storyboard for each possible path, or because you want to demonstrate different sets of human tasks in different sequences.

Checkpoint

1. What is a human task?

2. When creating a human task, what needs to be specified in order to identify who should perform the task?

3. What is an escalation?

4. What is the purpose of associating human tasks with forms?

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Figure 6-34. Checkpoint

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Notes:

Write your answers here:

- 1.
- 2.
- 3.
- 4.

Unit summary

Having completed this unit, you should be able to:

- Define a human task
- Define escalation behavior
- Perform human task conversion
- Associate forms to human tasks
- Describe storyboards for human tasks with forms

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Figure 6-35. Unit summary

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Notes:

Checkpoint solution

1. What is a human task?
Specialized tasks that a system assigns to a person to perform
2. When creating a human task, what needs to be specified in order to identify who should perform the task?
Primary owner
3. What is an escalation?
A course of action that takes place when a human task is not completed within the specified time period
4. What is the purpose of associating human tasks with forms?
Forms represent the electronic forms that people use to complete a human task

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Figure 6-36. Checkpoint solution

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Notes:

Exercise overview

In this exercise, you will:

- Create a human task
- Associate forms
- Assign a primary owner
- Define escalations
- Convert a local task to a local human task

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Figure 6-37. Exercise overview

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Notes:

Unit 7. Defining business rule tasks

What this unit is about

This unit describes the business rules task.

What you should be able to do

After completing this unit, you should be able to:

- Define what business rules are
- Capture business rules using a specialized task
- Create business rule templates
- Differentiate between global and local business rules
- Specify business rule logic using expressions

How you will check your progress:

- Checkpoint
- Lab exercises

References

None

Unit objectives

After completing this unit, you should be able to:

- Define what business rules are
- Capture business rules using a specialized task
- Create business rule templates
- Differentiate between global and local business rules
- Specify business rule logic using expressions

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Figure 7-1. Unit objectives

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Notes:

Creating business rules in Modeler

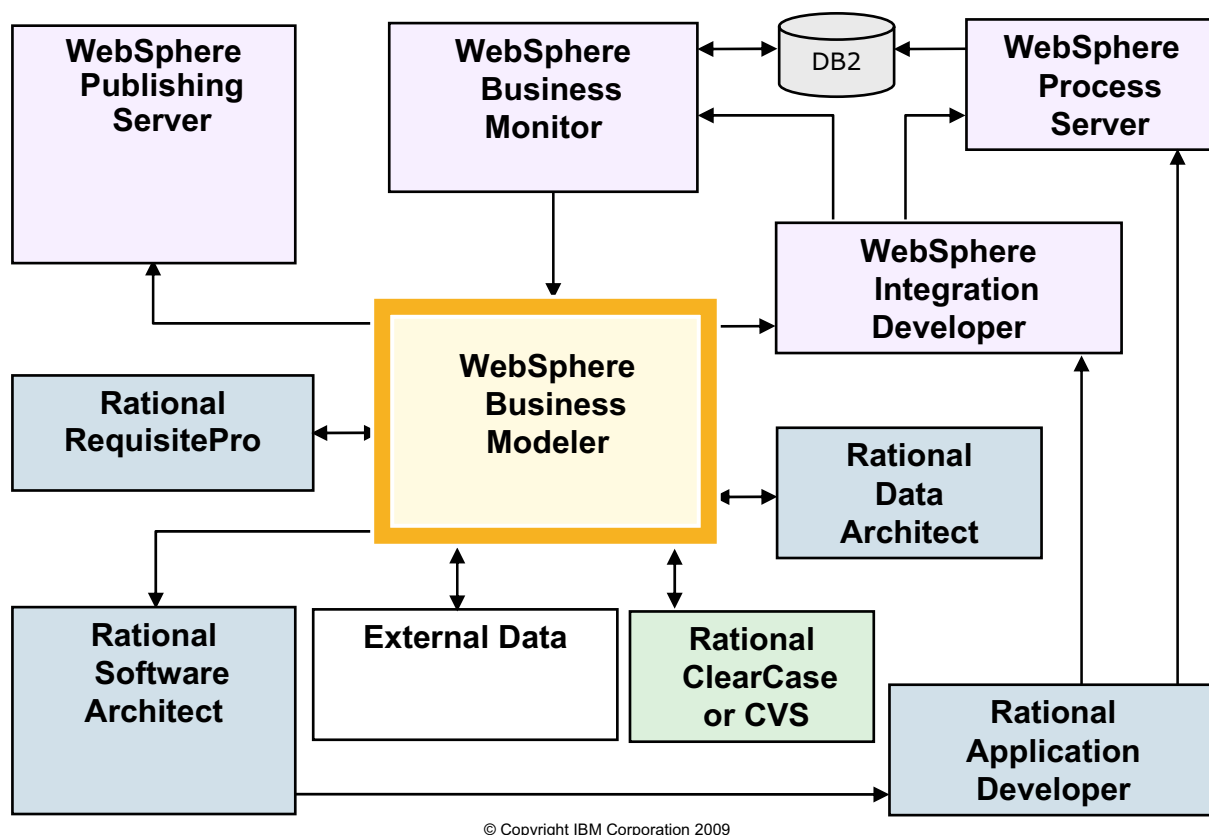


Figure 7-2. Creating business rules in Modeler

WB284 / VB2841.0

Notes:

Business rules

- Business rules capture and implement business policies and practices
 - Dynamic response to changing business environment
- Allows you to capture business rules as separate elements and incorporate them into your process flow
 - Can be updated without changing process flows if used with business rules task
- A part of the business logic that may change frequently.
 - Usually does not require a programming change
 - Can be defined and managed by a business analyst
 - Does not change the nature of the application
 - The logic remains the same, but the values being applied may differ
- Example:
 - During customer loyalty appreciation month, if a customer has spent more than \$1000 in past 12 months and this purchase is greater than \$100, then apply 10% discount.
- Can be reused in other processes and projects

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Figure 7-3. Business rules

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Notes:

Business rules provide the tactical details about how business policies or practices apply to a business activity. As you model your business processes, you can capture business rules as separate elements and incorporate them into your process flow using a specialized type of task called the business rules task. You can define business rules to whatever level of detail is required for your documentation or application development needs.

Once you have defined a set of business rules, you can reuse them in other processes and projects. Because each set of business rules is associated with a unique modeling element, the business rules task, you can update your business rules without changing process flows.

Benefits of defining business rules

- Enforcing business policies and practices
- Showing regulatory compliance by documenting business rules in a transparent way
- Automating complex decisions so that you can reduce costs, improve customer service, and react quickly to changing marketplace conditions
- Ensuring that the business view of the business rules is implemented accurately in applications by defining the underlying rule logic, including which parameter values can be modified in an application at run time
- Reducing the time and cost of implementing decision logic in applications by importing the business rules and rule logic into WebSphere Integration Developer
- Capturing business logic in a format that can be modified after it is deployed so that you can quickly adapt your business process to changes in the business environment
- Improving the quality of your processes by capturing the business rules in the design phase

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Figure 7-4. Benefits of defining business rules

WB284 / VB2841.0

Notes:



Business rules task (1 of 2)

- Specialized task
- Represents activities to which business rules apply
- Can be global (reusable) or local (process-specific)
- Used to model complex decisions and to visually identify places in your process model where business policies and practices apply
- Simplifies modeling when a business decision takes the form of a series of if-then statements or a large number of unstructured sentences
- To define rule conditions and actions, use Intermediate, Advanced, or WebSphere Process Server modeling mode

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Figure 7-5. Business rules task (1 of 2)

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Notes:

When a business decision takes the form of a series of if-then statements or a large number of unstructured sentences, you can use a business rules task to capture the business rules.

Depending on the modeling mode in which you work, you can specify different levels of detail for your business rules. For example, if you want to provide only a name and description for each business rule, you might want to use the Basic modeling mode. If you want to define rule conditions and actions for your business rules, you need to use the Intermediate, Advanced, or WebSphere Process Server modeling mode. However, if you switch from a more advanced modeling mode to the Basic mode, some information is filtered out of your view of the business rules.

As you can for other tasks, you can specify the related cost, revenue, duration, inputs, outputs, resources, organizations, and classifiers for business rules tasks. However, a business rules task can have only one set of inputs and outputs. Other than the task inputs and outputs, these additional task specifications apply to process modeling only. You can use this modeling information to run a simulation that treats the business rules task like a

generic task (that is, the rule logic defined for the business rules task is not run as part of the simulation). The task information required for simulation is not included with the business rules when you export a business rules task from WebSphere Business Modeler. You can define one or more business rules for a business rules task, and you can schedule when these business rules should take effect.

Business rules task (2 of 2)

- Business rule
 - Simple if-then logic
 - If a condition evaluates to true, then actions are invoked
- Business rule template
 - Create a rule template to reuse rule conditions and actions, or allow their parameter values to be changed in an application at run time

Attributes - Business Rules Task | Business Meas

General | Cost and Revenue | Duration | Inputs | Output | **Business Rules** | sources | Organizations | Classifiers | More

Business rules

Identify the high-level business rules associated with the task.

Business rule	Description

Add Edit... Remove

Scheduling

Specify which business rule should be used by default and which business rules are in effect on specific dates. Dates are set in local time zones, so the scheduling of business rules in an application at runtime occurs in the local time zone.

Default business rule

Scheduled business rules

Start date	End date	Business rule

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Figure 7-6. Business rules task (2 of 2)

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Notes:

Creating business rules tasks

- Associate business rules with activities by using business rules tasks
 - If business rules apply to several processes, create a global (reusable) business rules task
 - If business rules apply to a particular process only, create a local business rules task
- Add business rules to the task
- Each rule has a condition and actions
 - Condition and actions are specified based on task inputs, task outputs, and rule parameters

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Figure 7-7. Creating business rules tasks

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Notes:

You can associate business rules with activities in your process models using business rules tasks. For each business rules task, you can define a group of related business rules.

If the business rules might apply to several processes, create a global (reusable) business rules task in the Project Tree view. If the business rules apply to a particular process only, create a local business rules task from the Process editor palette.

To create a business rules task, complete the following steps:

Create a business rules task element:

- To create a global business rules task in the Project Tree view, right-click the process catalog and click **New > Business Rules Task**.
- To create a local business rules task from the palette of the Process editor, click the business rules task, drag the task to the point in the process where you want to apply business rules, and drop the task onto the process diagram.

If you want to define rule logic (rule conditions and actions) for your business rules, specify the task inputs and task outputs.

In the **Business Rules** section of the Business rules task editor (for global tasks) or the Attributes view (for local tasks), define the business rules at the level of detail that you require.

If you want certain business rules to apply at specific times, schedule these business rules.

Recommendation: Set a default business rule that applies when other scheduled business rules do not. If you plan to export the business rules task to WebSphere Integration Developer for inclusion in a process implementation, setting the default business rule minimizes the effort involved in developing the implementation.

For process modeling purposes, specify other aspects of the business rules task that apply. For example, identify which resources the task requires.

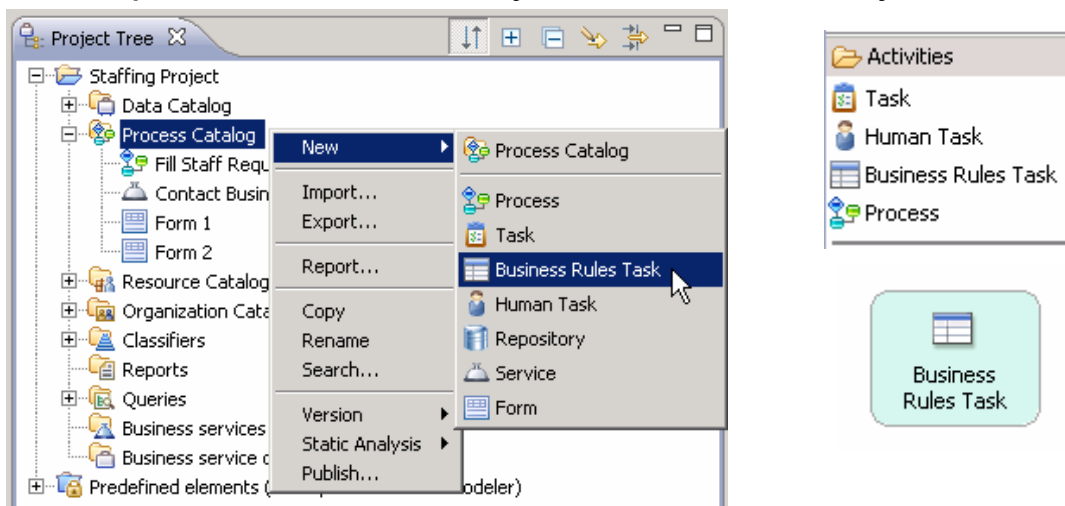
Save your changes to the business rules task.

If the output of the business rules task requires a branch in the process flow, add a decision to the process diagram after the business rules task.

If you plan to hand off your business rule definitions to IT for application development, only information relevant to the business rules is included in the export of the business rules task from WebSphere Business Modeler.

Creating a business rule task

- Create a stand-alone rule, or
- Use a template to create a set of rules that are similar and can be updated at run time by the business analyst



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Figure 7-8. Creating a business rule task

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Notes:

Creating a business rule

Define Business Rule

Specify the rule logic as a set of if-then rules
Create or modify one or more if-then rules that define the logic of the business rule. To create rule conditions and actions, the business rules task must have inputs and outputs defined.

Name
Business rule:1

Description
Is this job applicant a candidate for an executive position?

Important
To reuse rule conditions and actions or allow their parameter values to be changed in an application at runtime, create a rule template.

Rule Templates If-Then Rules

Rule Templates
To specify rule conditions and actions, create any required rule parameters. Also ensure that the business rules task has inputs and outputs defined.

Template ...	Rule condition	Rule action	Template ...

Add Template
Remove Template
Move Up
Move Down

Rule parameters
To change parameter values at runtime or add parameters to either the rule condition or action, specify rule parameters. Add constraint information as a description.

Parameter name	Type	Description

Add
Remove

Rule template presentation
Determine how the rule template is presented to users at runtime for modification of the rule parameter values.

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Figure 7-9. Creating a business rule

WB284 / VB2841.0

Notes:

If-then rules

- If-then rules define business rules
- If-then rules have rule conditions and actions
 - Based on task inputs, task outputs, and rule parameters
- Rule condition must evaluate to a Boolean value (true or false)
 - If rule condition is true, then assigned rule action is implemented
- Use Expression Builder in Intermediate, Advanced, or WebSphere Process Server mode to create expressions for rule conditions
- No semantic validation is performed on if-then rules
 - Similar or conflicting if-then rules are not identified
- If-then rules can be based on a previously defined rule template

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Figure 7-10. If-then rules

WB284 / VB2841.0

Notes:

To define a business rule, you create a set of if-then rules. You can simply document the behavior of these if-then rules by providing a name and, optionally, a description for each of them. You can also define the underlying rule logic for the if-then rules. For example, you could create a set of if-then rules to specify different discounts for customers with a different status, so a customer with Gold status might get a 10% discount while a customer with Silver status might get a 7% discount.

Each if-then rule has a rule condition and action, which you specify based on task inputs, task outputs, and rule parameters. The rule condition must evaluate to a Boolean value (true or false). If the rule condition is true, then the assigned rule action is implemented. For example, if the task input and output is a business item, a rule action could set the value for one or more business item attributes.

To create the expressions for rule conditions, you must use the Intermediate, Advanced, or WebSphere Process Server mode. These modeling modes allow you to use the Expression Builder. You can use the simple expression interface to create subexpressions

that are evaluated in sequence with no grouping of subexpressions. If you require more complex expressions, such as nested subexpressions, use the full expression interface.

Although you can create complex rule logic, you cannot invoke a database to add detailed information to rule conditions and actions.

The syntax of expressions in rule conditions and actions is validated. However, no semantic validation is performed on if-then rules, so similar or conflicting if-then rules are not identified.

You can base an if-then rule on a previously defined rule template. In this case, the rule condition, action, and description are specified in the rule template.

Business rule templates

- Rule templates allow flexibility in managing business rules during run time
- Rule parameters can be added to rule templates without revising or redeploying the application in use
 - Create the rule parameters before creating the conditions or actions
 - They will be selectable when creating the rule conditions or actions
- Example: As interest rates change, update rule parameters in a business process management application at run time
- Rule templates simplify creation of similar if-then rules
 - You can base more than one if-then rule on a rule template and specify different parameter values for each if-then rule

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Figure 7-11. Business rule templates

WB284 / VB2841.0

Notes:

Rule templates give you the flexibility to keep your business rules relevant. The rule parameters that you can add to rule templates provide this dynamic aspect of business rules. For example, as interest rates change, you can update the rule parameters in a business process management application at run time without revising or redeploying the application.

Rule templates also simplify the creation of similar if-then rules because you can base more than one if-then rule on a rule template and then specify different parameter values for each if-then rule.

Rule parameters

- Determine which aspects of rule template need rule parameters
 - Important because rule parameter values can be modified in an application at run time
- Can use only basic types (such as Integer type) to define rule parameters
- Can describe rule parameter constraints
 - Constraints on rule parameters can only be defined for implementation purposes using WebSphere Integration Developer

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Figure 7-12. Rule parameters

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Notes:

Because you can modify the values for rule parameters in an application at run time, decide which aspects of a rule template require rule parameters. For example, if you expect the length of a shift in a production schedule to change, make the schedule length a rule parameter. You can use only basic types, such as the Integer type, to define rule parameters. If the rule parameter should have constraints, you can describe these constraints. However, constraints on rule parameters can only be defined for implementation purposes using WebSphere Integration Developer.

Rule presentation

- Rule presentation allows you to summarize rule conditions and actions for users of business process management applications at run time
- Users can change parameter values of deployed business rules based on templates
- Can customize rule presentations to make them easier to understand

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Figure 7-13. Rule presentation

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Notes:

The rule presentation provides a way to summarize the rule condition and action for users of a business process management application at run time. Users of such an application can then change the parameter values of a deployed business rule that is based on a template. You can customize rule presentations to make them easier to understand. For example, you could change the automated rule presentation text to a description like the following one: If the customer has Gold status, apply a 'Gold Discount' discount to the price.

Creating a business rule template

Define Business Rule

Specify the rule logic as a set of if-then rules
Create or modify one or more if-then rules that define the logic of the business rule. To create rule conditions and actions, the business rules task must have inputs and outputs defined.

Name
Business rule:1

Description
Free shipping for order over \$25

Important
To reuse rule conditions and actions or allow their parameter values to be changed in an application at runtime, create a rule template.

Rule Templates If-Then Rules

Rule Templates
To specify rule conditions and actions, create any required rule parameters. Also ensure that the business rules task has inputs and outputs defined.

Template n...	Rule condition	Rule action	Template d...
Rule template:1			

Add Template
Remove Template
Move Up
Move Down

Rule parameters
To change parameter values at runtime or add parameters to either the rule condition or action, specify rule parameters. Add constraint information as a description.

Parameter name	Type	Description

Add
Remove

Rule template presentation
Determine how the rule template is presented to users at runtime for modification of the rule parameter values.

☒ Automatically generate the text for the rule template presentation
☐ Customize the text for the rule template presentation

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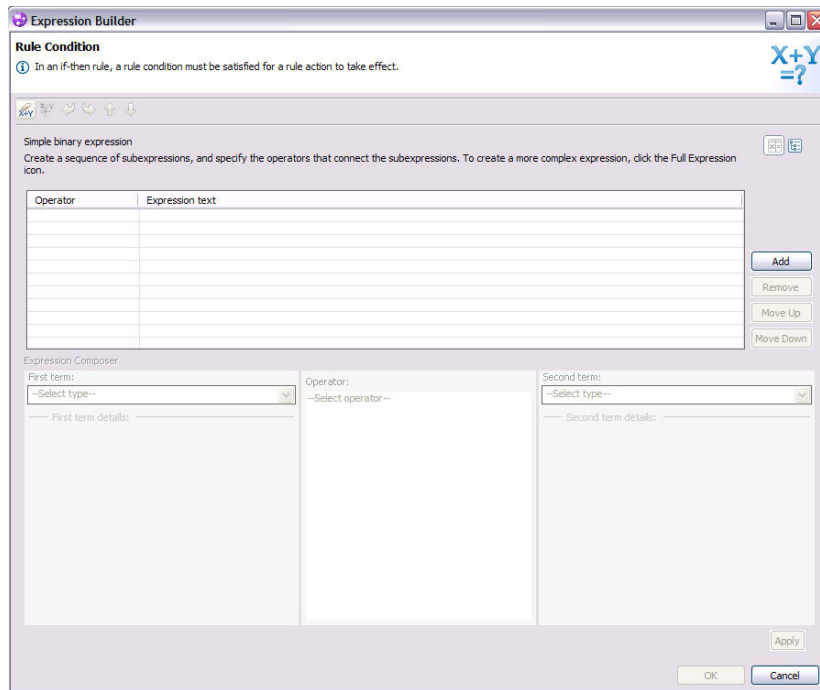
Figure 7-14. Creating a business rule template

WB284 / VB2841.0

Notes:

Condition expression builder

- Template parameters are available when creating expressions for business rules



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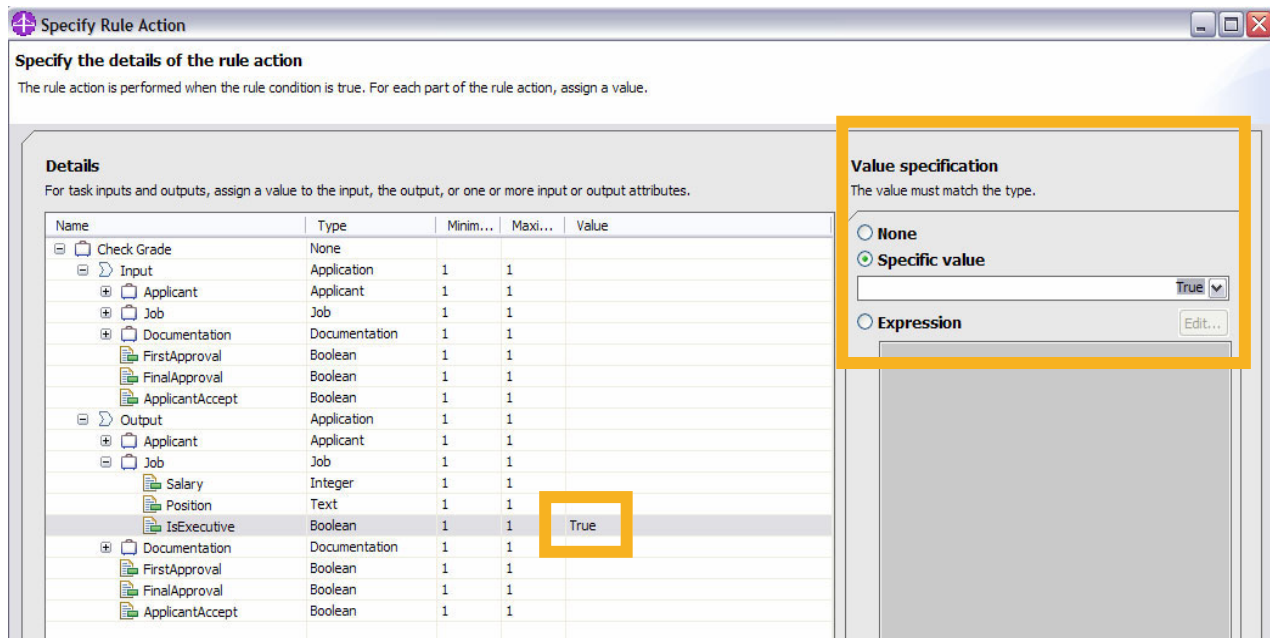
Figure 7-15. Condition expression builder

WB284 / VB2841.0

Notes:

Rule actions

- The rule action is performed when the rule condition is true. For each part of the rule action, assign a value.



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Figure 7-16. Rule actions

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Notes:

Scheduling of business rules (1 of 2)

- Scheduling business rules makes them active
- Define how the business rules for a particular activity relate to each other by scheduling when each business rule applies
- Design business rules in advance to go into effect when required
- Make a business rule active when no other business rules are scheduled, make it the default business rule
- If there are several business rules for a business rules task, schedule when these business rules should become active
 - If business rule has no starting point, leave start date blank
 - If business rule has no definite end point, leave end date blank
- Setting overlapping dates for business rules generates a scheduling conflict error message

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Figure 7-17. Scheduling of business rules (1 of 2)

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Notes:

To make business rules active in an application, they must be scheduled. In cases where you expect that certain business rules need to become active at a particular time, you can design the business rules in advance to go into effect as required. For example, a scheduled business rule might cover changes to government tax regulations that go into effect on the first of the year or a special price that goes into effect for one day only. If you want to ensure that a business rule is active when no other business rules are scheduled, make it the default business rule. In some cases, setting a default business rule might be the only scheduling information that is required. If you plan to export your business rules to WebSphere Integration Developer for inclusion in a process implementation, you should set a default business rule.

If you have several business rules for a business rules task, schedule when these business rules should become active. If there is no specific starting point for a business rule, leave the start date for it blank. Similarly, if a business rule starts at a specific time but remains active indefinitely after that, leave the end date for the business rule blank. Although you can set overlapping dates for business rules, doing so generates an error message that warns you of the scheduling conflict.

You can define how the business rules for a particular activity relate to each other by scheduling when each business rule applies. For example, a business rule about sale pricing might apply only at certain times.

After you have created your business rules, you can schedule them in the “Scheduling” section of the **Business Rules** page or tab.

Recommendation: Set a default business rule that applies when other scheduled business rules do not. If you plan to export the business rules task to WebSphere Integration Developer for inclusion in a process implementation, setting the default business rule minimizes the effort involved in developing the implementation.

To schedule a business rule, complete the following steps:

To make the business rule apply by default, select it from the **Default business rule** drop-down list. **Tip:** If a business rules task has only one business rule, make it the default business rule.

To make the business rule apply for a period of time, add it to the “Scheduled business rules” table:

- Click **Add**.
- Click in the **Business rule** column, and select the business rule from the drop-down list.
- In the **Start date** and **End date** columns, specify when the business rule applies. Leaving the **Start date** field blank means that the rule becomes effective immediately, and leaving the **End date** field blank means that the rule remains active indefinitely. If you inadvertently create overlapping schedules for business rules or leave both the **Start date** and **End date** fields blank, you get an error message that alerts you to the scheduling conflict. **Important:** If you choose to leave both the **Start date** and **End date** fields blank, the business rule overrides all other scheduled business rules, including the default business rule.
- To view the scheduled business rules in chronological order, move them to the correct place using the **Move Up** and **Move Down** buttons.

Repeat these steps to schedule additional business rules or to make the same business rule apply at different times.

Scheduling of business rules (2 of 2)

- Specify which business rule should be used by default and which business rules are in effect on specific dates.

The screenshot shows the 'Business Rules Task' window with the 'Scheduling' tab selected. The 'Business rules' section at the top allows identifying high-level business rules with a table and 'Add', 'Edit...', and 'Remove' buttons. The 'Scheduling' section below, highlighted with a yellow border, includes a 'Default business rule' dropdown and a 'Scheduled business rules' table. The table has columns for 'Start date', 'End date', and 'Business rule', with 'Add', 'Remove', 'Move Up', and 'Move Down' buttons on the right.

Business rules

Identify the high-level business rules associated with the task.

Business rule	Description

Add Edit... Remove

Scheduling

Specify which business rule should be used by default and which business rules are in effect on specific dates. Dates are set in local time zones, so the scheduling of business rules in an application at runtime occurs in the local time zone.

Default business rule

Scheduled business rules

Start date	End date	Business rule

Add Remove Move Up Move Down

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Figure 7-18. Scheduling of business rules (2 of 2)

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Notes:

Modeling considerations

- If there are rules specified for business items used as input to a business rules task, there is no interaction between:
 - The business item rules
 - The business rules defined for the business rules task
- Simulation does not evaluate business rules to:
 - Determine the outcome of a business rules task
 - Update the state of tokens flowing through the business process
- Predefined documentation reports for business rules tasks provide information about process modeling details and global business rules tasks
 - Reports do not provide information about individual business rules

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Figure 7-19. Modeling considerations

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Notes:

You can search for individual business rules in global business rules tasks by right-clicking in the Project Tree view and selecting **Search**. If you specified rules for business items that are used as input to a business rules task, there is no interaction between the business item rules and the business rules defined for the business rules task.

Simulation does not evaluate business rules to determine the outcome of a business rules task or to update the state of tokens flowing through the business process, so there is no dynamic analysis available for business rules.

The predefined documentation reports available for business rules tasks provide information about the process modeling details and specifications for global business rules tasks only. These reports do not provide information about individual business rules.

Importing business rules

- Business rules from WebSphere Business Modeler can be imported into WebSphere Integration Developer for inclusion in an application
- However, business rules cannot be exported from WebSphere Integration Developer into WebSphere Business Modeler
 - Cannot update process model so that it stays in synch with applications under development

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Figure 7-20. Importing business rules

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Notes:

You can export business rules from WebSphere Business Modeler and import them into WebSphere Integration Developer for inclusion in an application. However, you cannot export business rules from WebSphere Integration Developer and import them into WebSphere Business Modeler to update your process model so that it stays in synch with an application under development.

Checkpoint

1. What is a business rule?

2. What is a business rules task?

3. What is the purpose of scheduling business rules tasks?

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Figure 7-21. Checkpoint

WB284 / VB2841.0

Notes:

Write your answers here:

- 1.
- 2.
- 3.

Unit summary

Having completed this unit, you should be able to:

- Define what business rules are
- Capture business rules using a specialized task
- Create business rule templates
- Differentiate between global and local business rules
- Specify business rule logic using expressions

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Figure 7-22. Unit summary

WB284 / VB2841.0

Notes:

Checkpoint solution

1. What is a business rule?
A representation of how business policies or practices apply to a business activity
2. What is a business rules task?
A specialized task that represents activities to which business rules apply
3. What is the purpose of scheduling business rules tasks?
Scheduling allows you to specify which business rule should be used by default and which are in effect on specific dates

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Figure 7-23. Checkpoint solution

WB284 / VB2841.0

Notes:

Exercise overview

In this exercise, you will:

- Create and define business rules tasks
- Define business rules
- Define conditions and actions

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Figure 7-24. Exercise overview

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Notes:

Unit 8. Linking requirements to Rational RequisitePro

What this unit is about

This unit describes linking requirements to Rational RequisitePro.

What you should be able to do

After completing this unit, you should be able to:

- Explain the purpose and benefits of using IBM Rational RequisitePro
- Distinguish between direct and indirect associations between Modeler elements and RequisitePro requirements
- Work with the Requirement perspective in Modeler and associate elements with requirements

How you will check your progress

- Checkpoint
- Lab exercises

References

None

Unit objectives

After completing this unit, you should be able to:

- Explain the purpose and benefits of using IBM Rational RequisitePro
- Distinguish between direct and indirect associations between Modeler elements and RequisitePro requirements
- Work with the Requirement perspective in Modeler and associate elements with requirements

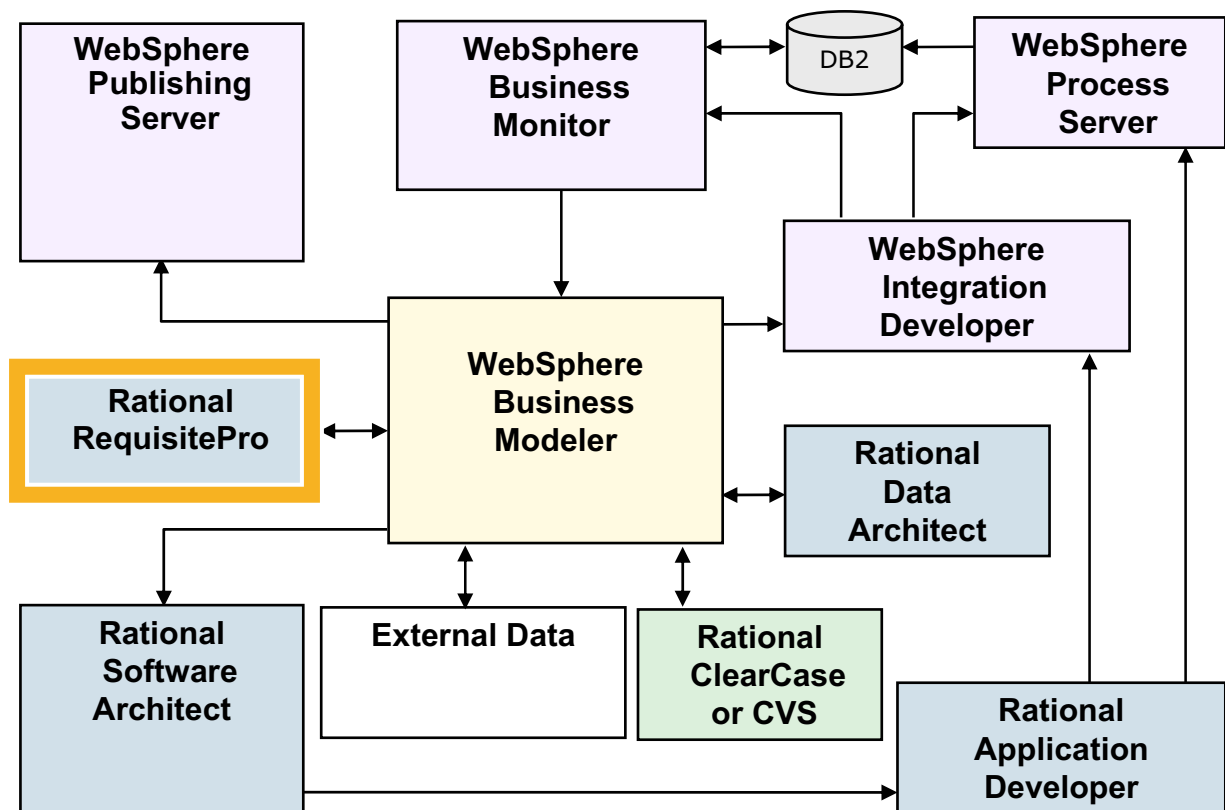
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Figure 8-1. Unit objectives

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Notes:

Synchronizing requirements with RequisitePro



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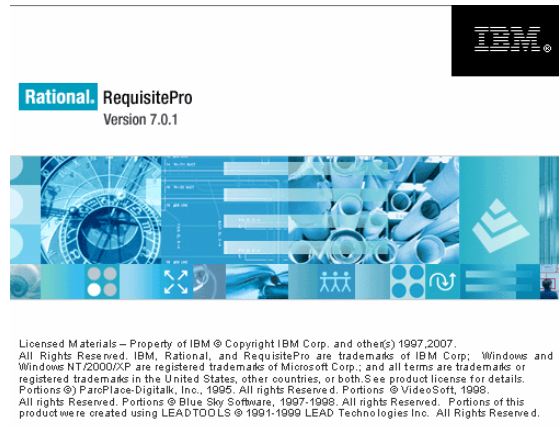
Figure 8-2. Synchronizing requirements with RequisitePro

WB284 / VB2841.0

Notes:

Overview: IBM Rational RequisitePro

- A requirements and use case management tool
 - Creation and storage
 - Categorization
 - Linkage
 - Query
 - Notification
- Useful for finding, documenting, organizing, and tracking requirements
- Three basic scenarios for deploying RequisitePro:
 - New project
 - You need new tools and processes for requirements tracking
 - Existing project, change process
 - You are looking to replace the entire requirements tracking process
 - Existing project, augment process
 - You utilize RequisitePro to build on top of the existing requirements tracking process



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Figure 8-3. Overview: IBM Rational RequisitePro

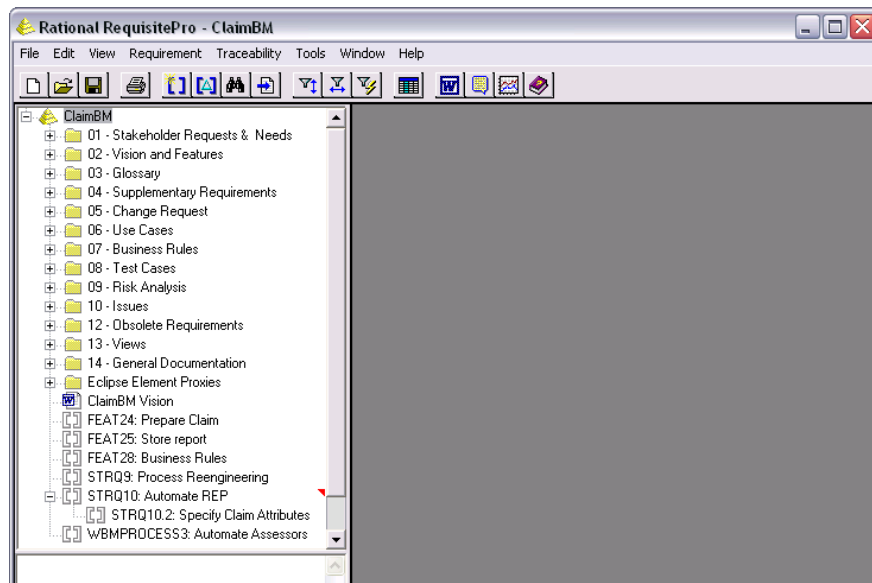
WB284 / VB2841.0

Notes:

IBM Rational RequisitePro is a separate product and requires a separate license. It is not packaged with WebSphere Business Modeler.

Benefits of using Rational RequisitePro

- Single, centralized requirement collection point for all requirements.
 - Provides a unified interface with which to analyze and compare requirements
- Trace requirements to line items
- Share more information with your development teams about the requirements



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Figure 8-4. Benefits of using Rational RequisitePro

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Notes:

RequisitePro terminology

- Requirement
 - Describes a condition or capability to which a system must conform
 - Derived directly from user needs or stated in a contract, standard, specification, or other formally imposed document
- Rational RequisitePro project
 - Used to manage all information and artifacts related to a requirements management project
 - Requirement types
 - Document types
 - Documents
 - Database for storing requirement information
 - Security information for controlling access by users

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Figure 8-5. RequisitePro terminology

WB284 / VB2841.0

Notes:

The integration with Rational RequisitePro provides a requirement database and document management capability for creating and managing requirements that are associated with Rational Software Delivery Platform elements.

Rational RequisitePro integration for WebSphere Business Modeler

- Rational RequisitePro plug-in for WebSphere Business Modeler
- Rational RequisitePro must also be installed on same machine
- Associate model elements in Modeler with requirements in RequisitePro to provide traceability between requirements and business processes and process elements
- Modeler interacts with contents of Rational RequisitePro projects
- RequisitePro contains the Business Modeling template, which creates projects designed for the Rational RequisitePro integration
- Link requirements from projects created from other templates to WebSphere Business Modeler elements

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Figure 8-6. Rational RequisitePro integration for WebSphere Business Modeler

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Notes:

The IBM Rational RequisitePro integration for WebSphere Business Modeler is an enhancement to WebSphere Business Modeler that you can install using the software updates function. This plug-in is free and needs to be downloaded. It is not included in the initial installation software.

When you use the IBM Rational RequisitePro integration for WebSphere Business Modeler, you can associate model elements in WebSphere Business Modeler with requirements in Rational RequisitePro to provide traceability between requirements and business processes and process elements.

Rational RequisitePro is a requirements and use case management tool. If you have Rational RequisitePro installed on the same machine as WebSphere Business Modeler, WebSphere Business Modeler can interact with the contents of Rational RequisitePro projects. The Rational RequisitePro integration for WebSphere Business Modeler is the enhancement to WebSphere Business Modeler that supports this interaction. For the stand-alone version of WebSphere Business Modeler, the Rational RequisitePro integration installs into WebSphere Business Modeler. If WebSphere Business Modeler is

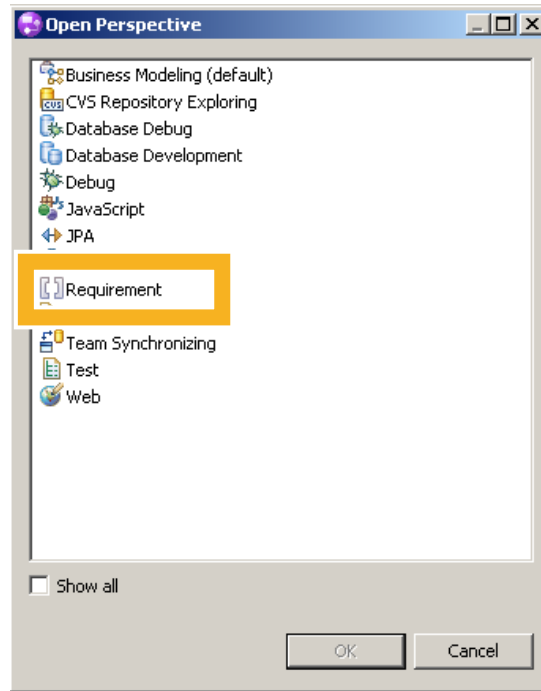
installed as a plug-in for WebSphere Integration Developer or another supported IBM Rational product, the Rational RequisitePro integration installs into that product.

Rational RequisitePro contains the Business Modeling template, which creates projects designed for the Rational RequisitePro integration. You can also link requirements from projects created from other templates to WebSphere Business Modeler elements.

The Rational RequisitePro integration provides the Requirement perspective and a set of Requirement views that you can add to WebSphere Business Modeler. With the perspective or the views, you will see the changes that you made in Rational RequisitePro in WebSphere Business Modeler after you refresh the views in WebSphere Business Modeler. Similarly, you will see the changes that you made in the Rational RequisitePro integration views in Rational RequisitePro after you refresh Rational RequisitePro.

Opening the Requirement perspective

- **Window > Open Perspective > Other**



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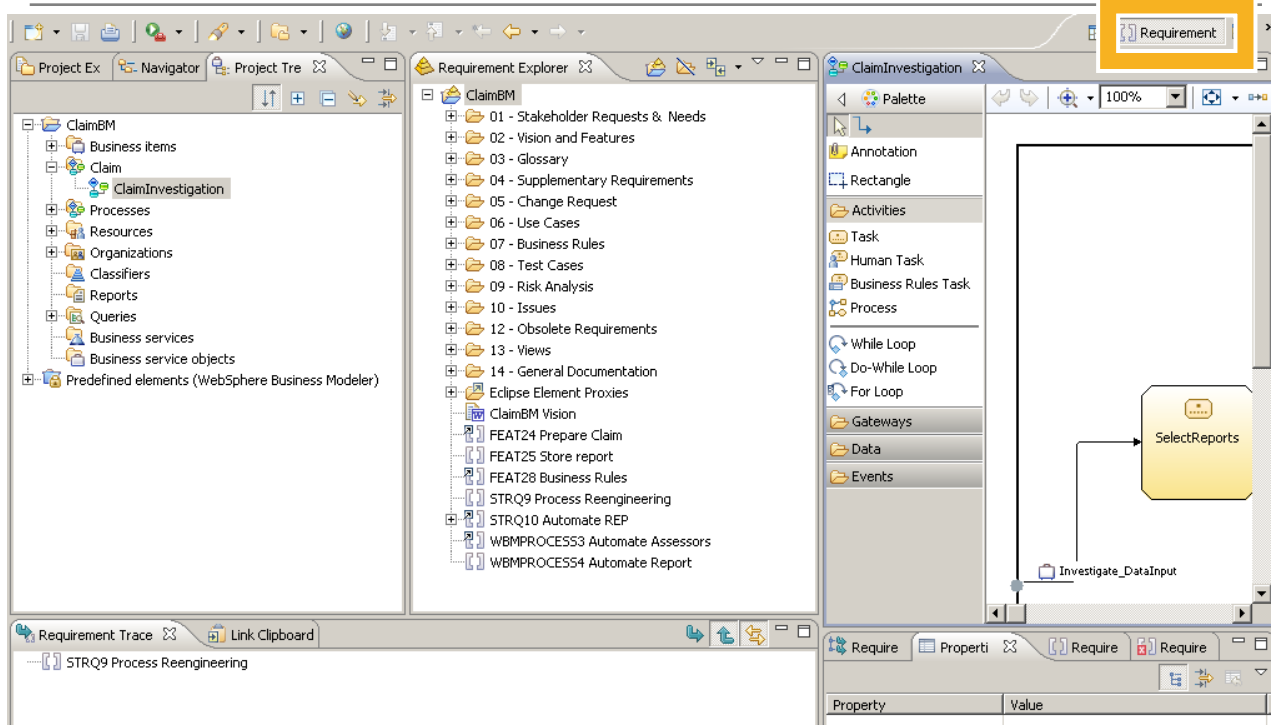
Figure 8-7. Opening the Requirement perspective

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Notes:

To open the Requirement perspective, click **Window > Open Perspective** or click the **Open a perspective** button on the shortcut bar. Then click **Other > Requirement**.

Requirement perspective



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Figure 8-8. Requirement perspective

WB284 / VB2841.0

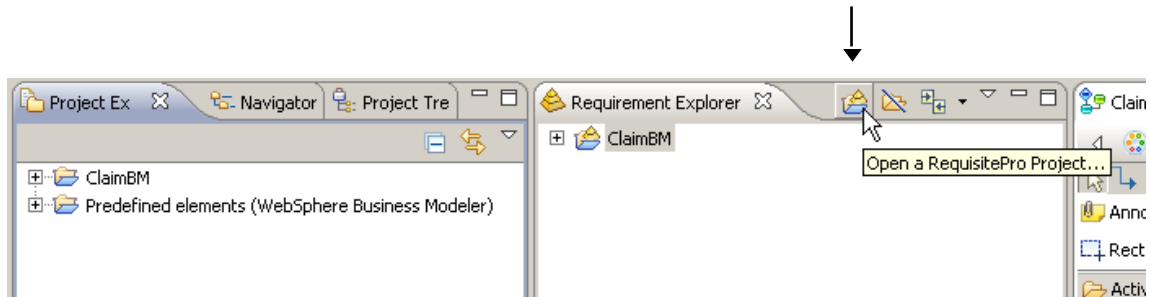
Notes:

The Requirement perspective enables all capabilities of the RequisitePro integration, including the following views:

- Requirement Explorer
- Requirement Editor
- Requirement Trace
- Link Clipboard
- Requirement Query Results
- Requirement Link Problems
- Properties
- Requirement Text

Using the Requirement Explorer view

- Right-click from Requirement Explorer or click icon



- Manage requirements by creating, moving, and deleting
- Organize requirements into logical groups called packages

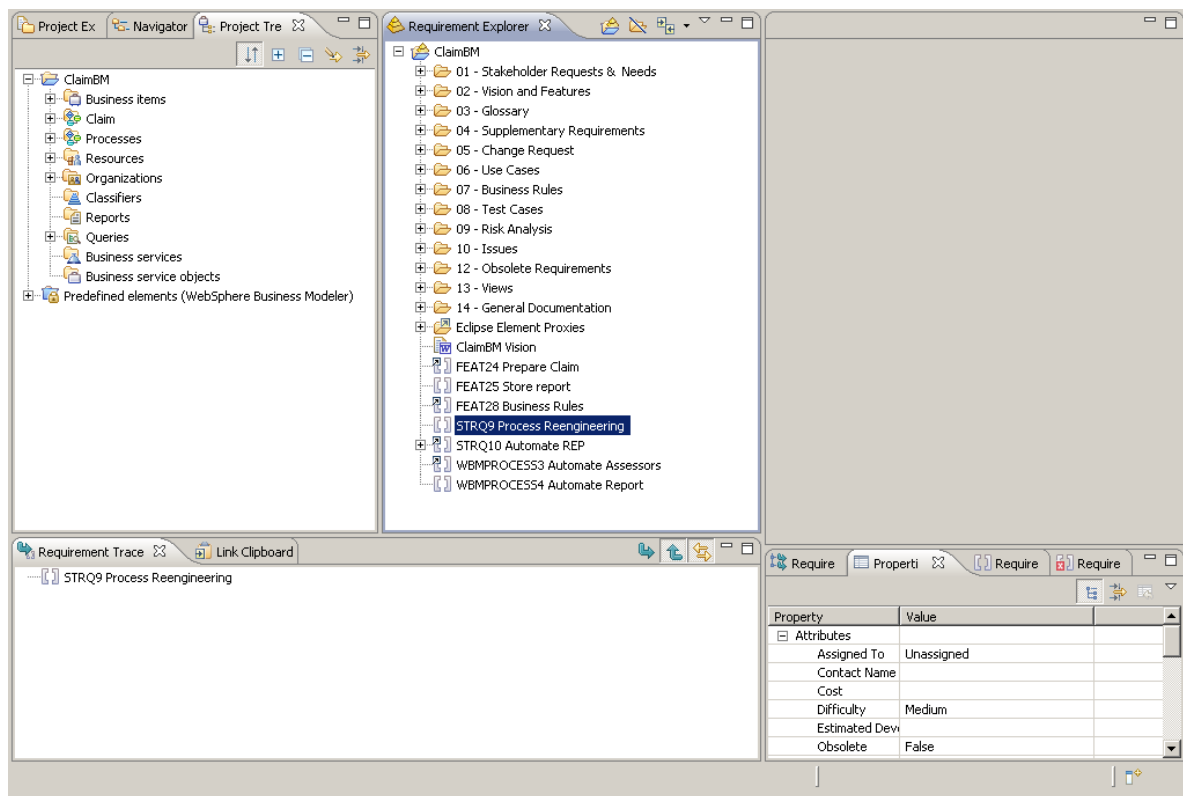
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Figure 8-9. Using the Requirement Explorer view

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Notes:

Workspace with RequisitePro project opened



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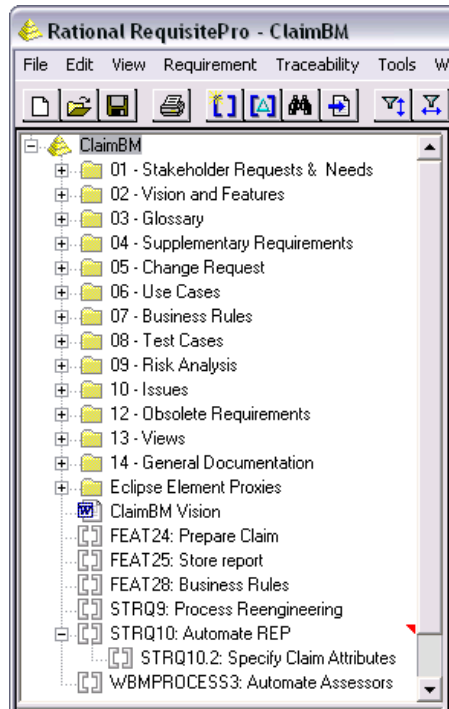
Figure 8-10. Workspace with RequisitePro project opened

WB284 / VB2841.0

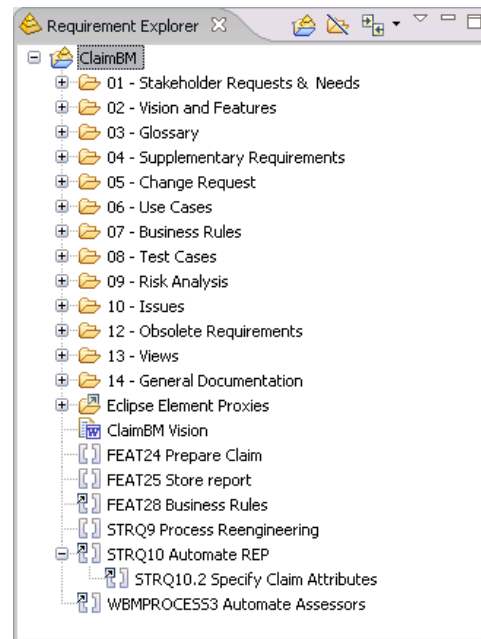
Notes:

Requirement Explorer: Comparison between RequisitePro and Modeler

Requirement Explorer in
Rational RequisitePro



Requirement Explorer in
WebSphere Business Modeler



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Figure 8-11. Requirement Explorer: Comparison between RequisitePro and Modeler

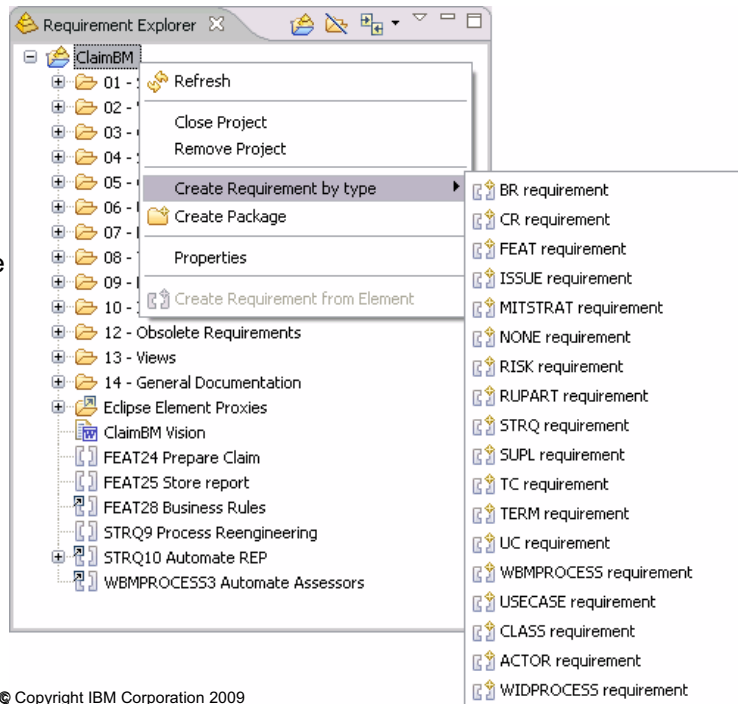
WB284 / VB2841.0

Notes:

Creating requirements

- Right-click project or package in Requirement Explorer and select requirement type to be created

- BR: Business Rules
- CR: Change Request
- FEAT: Feature
- ISSUE: Issues
- MITSTRAT: Mitigation Strategy
- NONE: Documents without reqmts
- RISK: Risk
- RUPART: RUP Development Case
- STRQ: Stakeholder Request
- SUPL: Supplementary
- TC: Test Case
- TERM: Glossary term
- UC: Use Case
- WBMPROCESS: WBMPProcess
- USECASE: USECASE
- CLASS: CLASS
- ACTOR: ACTOR
- WIDPROCESS: WIDPROCESS



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Figure 8-12. Creating requirements

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Notes:

Legend:

- BR: Business Rules
- CR: Change Request
- FEAT: Feature
- ISSUE: Issues
- MITSTRAT: Mitigation Strategy
- NONE: Default for documents without requirements
- RISK: Risk
- RUPART: Rational Unified Process (RUP) Development Case Artifact
- STRQ: Stakeholder Request
- SUPL: Supplementary
- TC: Test Case

- TERM: Glossary term
- UC: Use Case
- WBMPROCESS: WBMPProcess
- USECASE: USECASE
- CLASS: CLASS
- ACTOR: ACTOR
- WIDPROCESS: WIDPROCESS

You can create a requirement in a Rational RequisitePro project in the Requirement Explorer view.

The types of requirements you can create in a project depend on the requirement types defined in the RequisitePro project.

Use the Requirement Editor to enter a description and attribute values for the requirement. You can add HTML tags to format the description and preview the formatted text. The formatting is not displayed in other contexts in RequisitePro; the HTML tags are visible in Attribute Matrix views and in the Rational RequisitePro Properties window. Do not use HTML tags for requirements that are located in Microsoft Word documents.

To create a new requirement in a project:

1. Right-click a project or package in the Requirement Explorer view.
2. Click **Create Requirement by type**, and then select a requirement type.
3. Type a name for the requirement at the requirement icon in the Requirement Explorer view.
4. Double-click the new requirement in the Requirement Explorer view. The Overview page is displayed in the Requirement Editor.
5. Type text for the requirement in the **Description** field. Optionally, you can add HTML tags and click **Preview** to view them.
6. Enter attribute values in the **Details** section.
7. Click the **Save** icon on the toolbar.

You can only create database requirements in the integration. To place a requirement in a document, open RequisitePro, select the requirement in an Attribute Matrix, and click **Edit > Copy**, and then open the document and click **RequisitePro > Requirement > Paste**.

A *requirement type* is a category of requirements and its associated set of descriptive and operational characteristics. Examples of requirement types include features, use cases, supplementary requirements, and glossary terms.

A requirement type serves as a template for all requirements of the same type and is useful for classifying or grouping similar requirements in a project. Each requirement type has a unique set of attributes defined by the system or administrator. The requirement type also

specifies the requirement tag prefix (such as FEAT, UC, SUPP, and GLOSS), text color, and text style.

Associations between requirements and Modeler elements

- Associate requirements with Modeler elements quickly by dragging artifacts between views
- Create, view, and navigate to associated artifacts within Modeler
- Manage your Modeler elements with attributes, such as priority and status, in RequisitePro
- Establish traceability to requirements to indicate dependencies and ensure that your design satisfies your project requirements
- Monitor the impact of change within your project
- Develop use cases in RequisitePro and then model them
- Change the name and text of a requirement in either product and synchronize them with Modeler elements in direct associations based on rules, which you can configure
- Navigate between Modeler elements and associated requirements in the Requirement Explorer view, RequisitePro, and Microsoft Word requirements documents

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Figure 8-13. Associations between requirements and Modeler elements

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Notes:

You can use the Rational RequisitePro integration to associate requirements with Modeler elements.

You can also use the integration to extend your requirements and Modeler elements with the following capabilities:

- Associate requirements with Modeler elements quickly by dragging artifacts between views
- Create, view and navigate to associated artifacts within Modeler
- Manage your Modeler elements with attributes, such as priority and status, in RequisitePro
- Establish traceability to requirements to indicate dependencies and ensure that your design satisfies your project requirements
- Monitor the impact of change within your project
- Develop use cases in RequisitePro and then model them

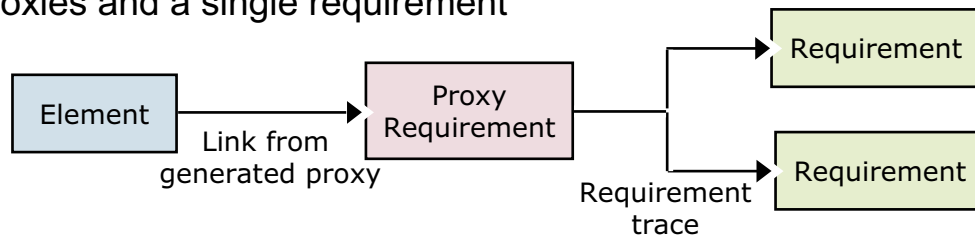
- Change the name and text of a requirement in either product and synchronize them with Modeler elements in direct associations based on rules, which you can configure
- Navigate between Modeler elements and associated requirements in the Requirement Explorer view, the RequisitePro client for Windows, and Microsoft Word requirements documents

Package and folder associations

In addition to associations between requirements and Modeler elements, you can also associate a requirement with a Modeler package or a folder. You can use package and folder associations to relate groups of Modeler elements with a specific requirement.

Association types (1 of 2)

- You can link requirements and Modeler elements with direct or indirect associations
 - Use the integration to synchronize the direct associations
- Direct association
 - Associates a Modeler element and a requirement and synchronizes both artifacts so that you can manage them as a single, conceptual item
- Indirect association
 - Links Modeler elements and requirements through proxy requirements and traceability
 - Useful for creating many-to-many relationships with traceability between multiple requirements and a single proxy or between multiple proxies and a single requirement



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Figure 8-14. Association types (1 of 2)

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Notes:

Direct associations

A *direct association* is a link that associates a Modeler element and a requirement and synchronizes both artifacts so that you can manage them as a single, conceptual item.

A direct association extends the Modeler element and creates a one-to-one, exclusive relationship between the Modeler element and the requirement. This direct link further defines the use-case requirement by displaying the model element's interaction with actors and other model elements. It also helps you ensure that your model satisfies all the use cases that are defined in the project requirements. With associated use cases, you can also navigate to documents that elaborate the use cases with descriptions, flows of events, special requirements, and conditions.

By default, use cases are the only Modeler elements that are configured to directly link to a requirement; however, you can use the Link Policy page of the Project Properties window to configure other requirement types and elements for direct linking. You can also customize the settings on the Synchronization page of the Project Properties window.

When you link Modeler elements and requirements in a direct association, the name and text of the requirement is synchronized with the name and documentation text of the Modeler element if you use the default project properties. If the name and text of the requirement and the Modeler element do not match when you create the link, you are prompted to resolve any differences between them. This prompt is also displayed if you change the name or text of either of the linked artifacts. Synchronization is not required for blank requirement names, because requirements created within Rational RequisitePro documents use the text rather than the name field.

Indirect associations

An *indirect association* links Modeler elements and requirements through proxy requirements and traceability. Indirect associations are particularly useful for creating many-to-many relationships with traceability between multiple requirements and a single proxy or between multiple proxies and a single requirement.

With the default project configuration, when you associate a Modeler element that is not configured for direct linking with a requirement, the integration creates a proxy requirement in Rational RequisitePro. This proxy represents the Modeler element in the project database and is linked directly to the Modeler element. This direct link is represented by a link arrow on the icons for the Modeler element and its proxy requirement in the Project Tree view and the Requirement Explorer view. Proxy requirements are created in the Eclipse Element Proxies package in the Requirement Explorer view. The integration also creates traceability from the proxy to the requirement that you selected for the association. This requirement trace is represented by a link-by-proxy arrow on the icon for the associated requirement.

Association types (2 of 2)

- Links between Modeler elements and requirements
 - A *link* is a connection between a requirement and a Modeler element in the Navigator, Project Explorer, or Project Tree view
- Requirement synchronization
 - When you link a Modeler element and requirement with a direct association, you must synchronize the name and text fields of the Modeler element and requirement
 - Synchronization resolves a mismatch in the name and text of requirements and Modeler elements

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Figure 8-15. Association types (2 of 2)

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Notes:

Links between Modeler elements and requirements

A *link* is a connection between a requirement and a Modeler element in the Navigator, Project Explorer, or Project Tree view.

When you associate a Modeler element with a requirement, you create a link between the artifacts if they are configured for direct associations. For indirect associations, the Modeler element is linked to a proxy requirement and the requirement is traced to the proxy. With direct associations, a Modeler element is linked to one requirement only. With indirect associations, a Modeler element is linked to one proxy requirement only; however, multiple requirements can be traced to or from that proxy.

Links are represented by a link arrow on the icons for the Modeler element and the requirement or proxy requirement.

You can right-click an artifact with a link to select (or view) its linked artifact elsewhere in the workspace and navigate from one view to another.

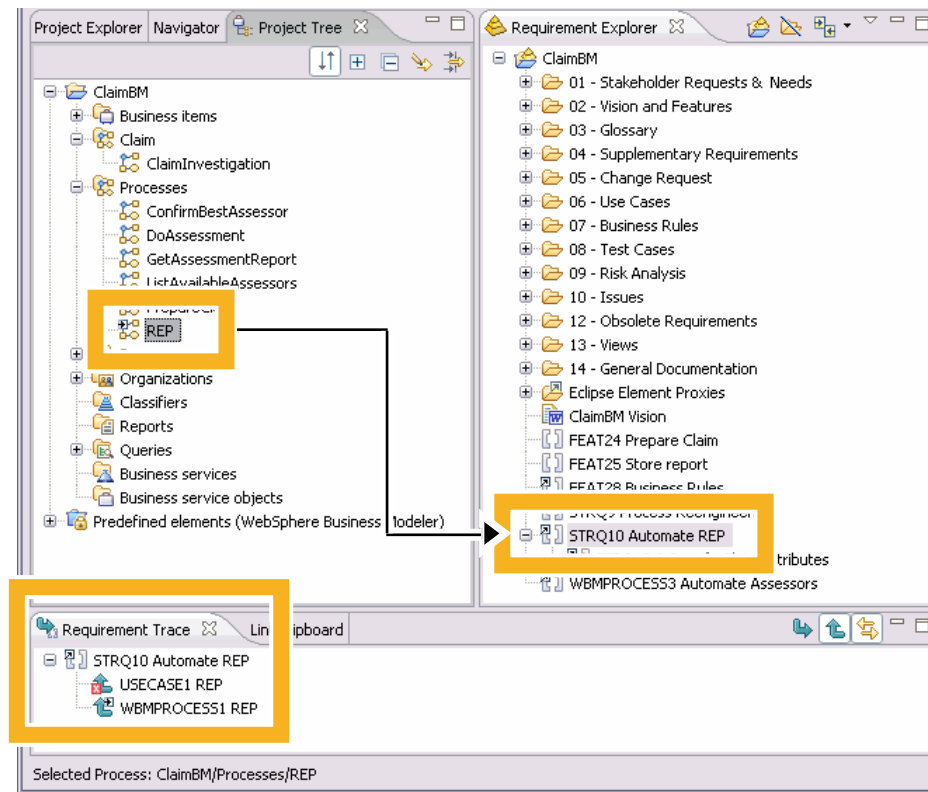
Requirement synchronization

When you link a Modeler element and requirement with a direct association, you must synchronize the name and text fields of the Modeler element and requirement. Synchronization resolves a mismatch in the name and text of requirements and Modeler elements.

When you create a direct association between a requirement and a Modeler element, any change in the name and text of the requirement or the Modeler element causes the RequisitePro Requirement Synchronization window to open. You can then select the requirement version or the Modeler element version to apply to the name and text of both artifacts. You can also use a synchronization policy to indicate which version of the name and text to apply in all cases. To access the synchronization policy, right-click the project icon in the Requirement Explorer view and click **Properties**. The following policy options are available:

- **ELEMENT WINS:** Overwrite the name and text of the requirement with the name and text of the Modeler element.
- **REQUIREMENT WINS:** Overwrite the name and text of the Modeler element with the name and text of the requirement.
- **PROMPT:** Prompt the user in each case to resolve the synchronization.
- **NONE:** Exempt the association from synchronization.

Associating Modeler element with RequisitePro requirement



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Figure 8-16. Associating Modeler element with RequisitePro requirement

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Notes:

You can create a direct association between a requirement and a Modeler element if the Rational RequisitePro project properties are configured to permit linking of the two artifact types. This association links the requirement and the Modeler element in a one-to-one, exclusive relationship and synchronizes the name and text (or documentation) of both artifacts so that you can manage them as a single, conceptual item.

To create a direct association:

1. Right-click a use-case requirement in the Requirement Explorer view and click **Linkability > Add to Link Clipboard**. The requirement is displayed in the Link Clipboard view.
2. Right-click the corresponding use-case Modeler element in the Project Explorer view or a diagram and click **Linkability > Create Link to requirement name**. If the name and text of the requirement do not match the name and documentation text of the Modeler element, the RequisitePro Requirement Synchronization window opens so that you can resolve the conflict. Choose the appropriate name and text for the Modeler element. A

link arrow is displayed on the requirement icon, indicating that a direct association exists for that requirement.

Note: For Steps 1 and 2, you can also work in the opposite direction, from the Modeler element to the requirement.

As an alternative to using the previously described menu items, you can drag a requirement to a Modeler element or drag a Modeler element to a requirement.

Checkpoint

1. What is Rational RequisitePro primarily used for?

2. _____
What is a direct association?

3. _____
What is an indirect association?

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Figure 8-17. Checkpoint

WB284 / VB2841.0

Notes:

Write your answers here:

- 1.
- 2.
- 3.

Unit summary

Having completed this unit, you should be able to:

- Explain the purpose and benefits of using IBM Rational RequisitePro
- Distinguish between direct and indirect associations between Modeler elements and RequisitePro requirements
- Work with the Requirement perspective in Modeler and associate elements with requirements

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Figure 8-18. Unit summary

WB284 / VB2841.0

Notes:

Checkpoint solution

1. What is Rational RequisitePro primarily used for?
Finding, documenting, organizing, and tracking requirements
2. What is a direct association?
A link that associates a Modeler element and a requirement and synchronizes both artifacts so that you can manage them as a single, conceptual item
3. What is an indirect association?
An indirect association links Modeler elements and requirements through proxy requirements

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Figure 8-19. Checkpoint solution

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Notes:

Exercise overview

In this exercise, you will:

- Use Requirement perspective
- Open RequisitePro project
- Associate Modeler elements with requirements

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Figure 8-20. Exercise overview

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Notes:

Unit 9. Model validation and static analysis

What this unit is about

This unit describes model validation and static analysis.

What you should be able to do

After completing this unit, you should be able to:

- Explain the fundamentals of model validation
- Explain the function of static analyses of time, cost, resources, and process flow

How you will check your progress

- Checkpoint
- Lab exercises

References

None

Unit objectives

After completing this unit, you should be able to:

- Explain the fundamentals of model validation
- Explain the function of static analyses of time, cost, resources, and process flow

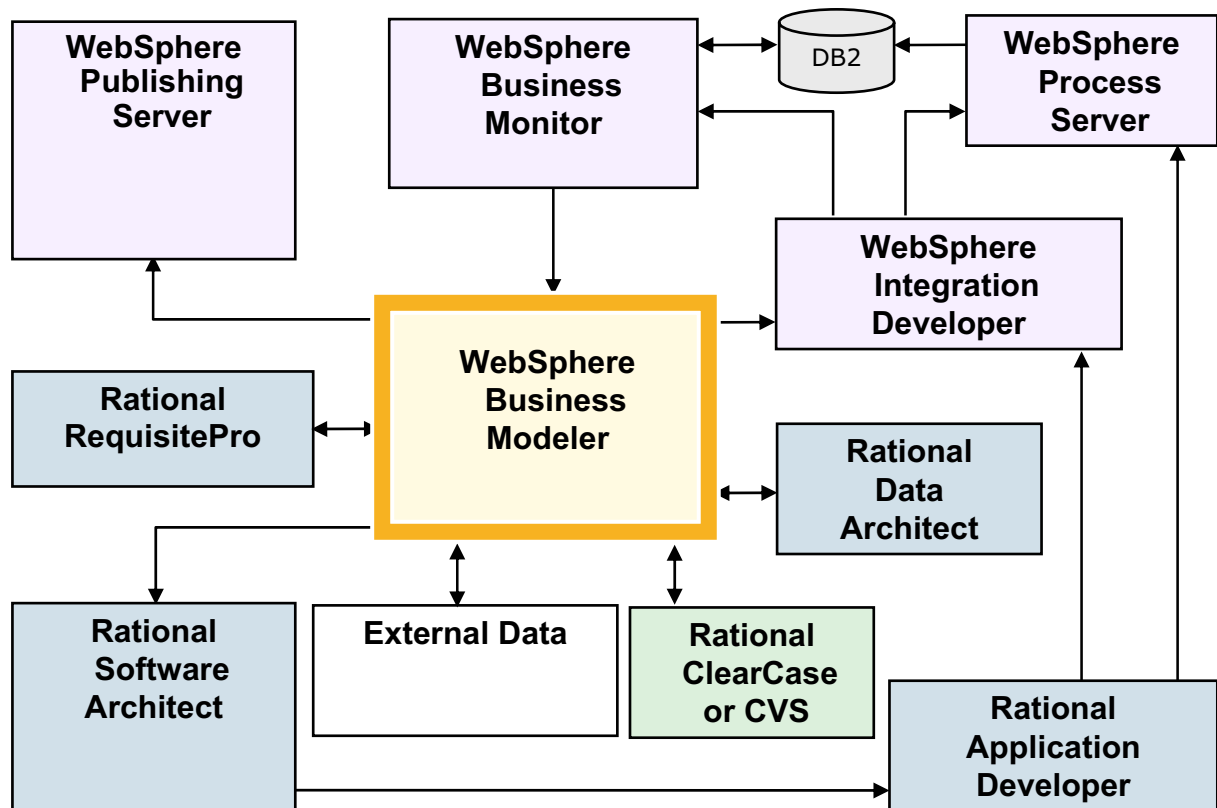
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Figure 9-1. Unit objectives

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Notes:

Performing static analysis with Modeler



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Figure 9-2. Performing static analysis with Modeler

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Notes:

Validation fundamentals

- **Syntax:** Model constructs are correct and valid.
 - Is the model properly constructed to provide valid results in the Modeler?
- **Semantics:** The meaning of the model is correct — task attributes, organizations, roles, sequence of tasks.
 - Does the model created reflect what is occurring in the business, or what could occur in the business?
 - Is it thorough; was any data left out?
- **Sense:** The model is business relevant; cost (time and money) assumptions and their causes are valid.
 - Does it make sense that the model and resulting analysis show on average that it takes three weeks to process a claim when company metrics would suggest one week?
- **Standards:** The model adheres to the defined modeling standards — constructs, naming conventions.
 - Will the model be able to be understood by someone who was not involved with its creation?

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Figure 9-3. Validation fundamentals

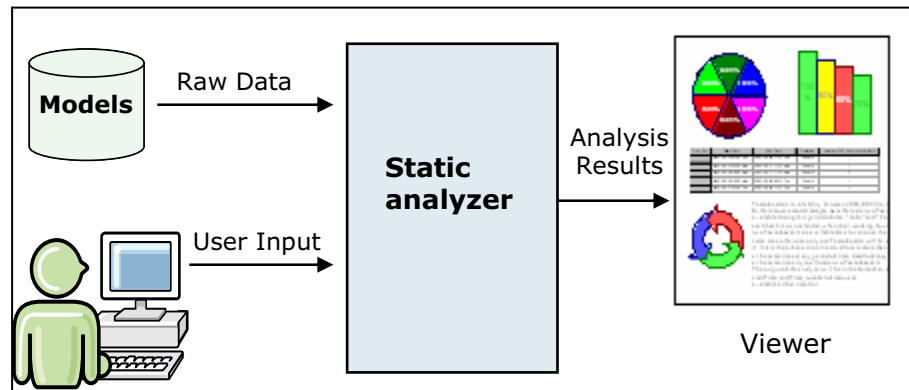
WB284 / VB2841.0

Notes:

Static analysis overview

- Gives business users important information computed from the raw data in the models:

- Cost
- Time
- Performance
- Improvement capabilities
- Process flow validity
- Resources leveling
- Qualified resources to play important roles



- Inputs are raw model data and parameters entered by the user.
- Results are viewed using either a tabular or graphical viewer.
 - Results can be printed using predefined report templates.

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Figure 9-4. Static analysis overview

WB284 / VB2841.0

Notes:

Static analysis functions in process editor

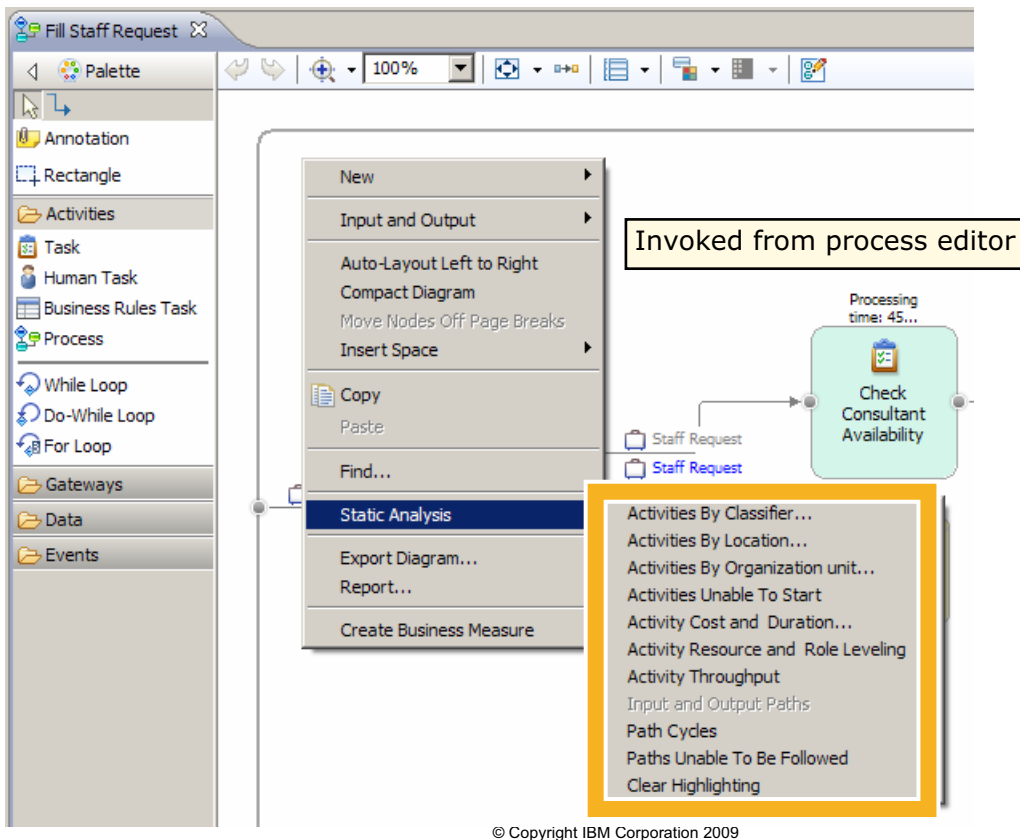
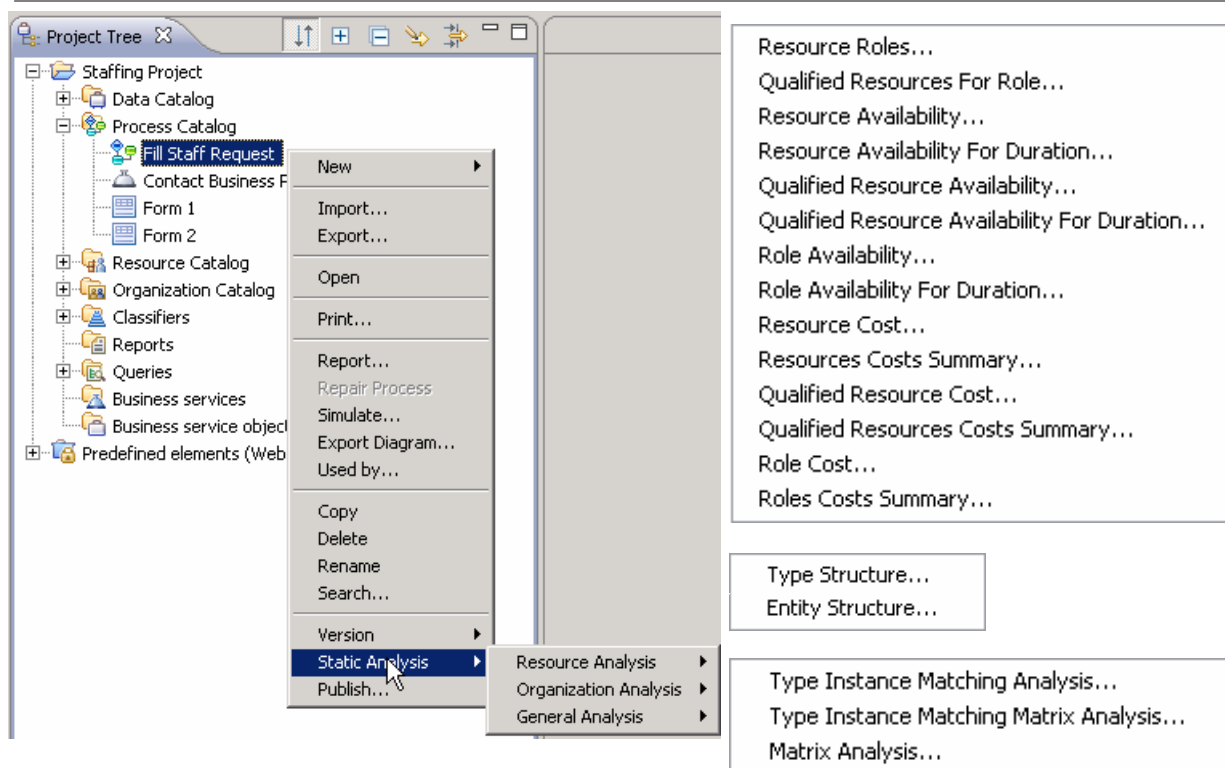


Figure 9-5. Static analysis functions in process editor

WB284 / VB2841.0

Notes:

Static analysis functions in Project Tree



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Figure 9-6. Static analysis functions in Project Tree

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Notes:

Process model analysis (1 of 2)

- Activities by classifier
 - Returns the activities of the process categorized by key identifiers
- Activities by location
 - Returns the activities of the process that are performed at each location
- Activities by organization unit
 - Returns the activities performed by each organization unit used within the process
- Activity cost and duration
 - Returns the cost of each activity as a sum of the average costs of the allocated resources
 - It also computes the total working duration of the allocated resources of each activity, and the minimum working duration of the activity.
- Activity resource and role leveling
 - Compares the number of required resources to the number of available resources for each activity in the process

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Figure 9-7. Process model analysis (1 of 2)

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Notes:

Process model analysis (2 of 2)

- Activity throughput
 - Returns the productivity per time unit of activities in the process
- Input and output paths
 - Returns the paths in the process that lead in and out of a specified input or output of an activity
- Activities unable to start
 - Returns a list of activities in the process that cannot be performed due to unavailable resources, empty input criteria, or inputs that lack connections
- Path cycles
 - Returns the cycles in the process, where a cycle is defined as a path with a closed loop of connectors
- Paths unable to be followed
 - Returns a list of paths in the process that cannot be followed, as a result of one or more undoable input criteria of activities within the path

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Figure 9-8. Process model analysis (2 of 2)

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Notes:

Resource analysis (1 of 3)

- Resource roles
 - Shows the qualifications of resources in terms of roles and scope of roles
- Qualified resources for role
 - Shows the resources that are qualified to perform a specified role
- Resource availability
 - Shows the periods during which a resource is available
- Resource availability for duration
 - Shows the periods a resource is available, for a specified duration
 - Duration may be continuous or divided into separate segments
 - Depends on the setting chosen when defining the analysis
- Qualified resource availability
 - Shows the periods a resource qualified for a selected role is available

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Figure 9-9. Resource analysis (1 of 3)

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Notes:

Resource analysis (2 of 3)

- Qualified resource availability for duration
 - Shows the periods a resource qualified for a role is available for a duration
 - Duration may be continuous or divided into separate segments
 - Depends on a setting chosen when defining the analysis
- Role availability
 - Shows the periods during which a role is available
- Role availability for duration
 - Shows when a role is available for a specified duration
 - The duration may be continuous or it may be divided into separate segments
 - Depends on setting chosen when defining the analysis
- Resource cost
 - Shows the cost of a resource for all periods during which the resource is available between a specified start and end time
- Resources costs summary
 - Shows the costs of multiple resources for all periods during which the resources are available between a specified start and end time

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Figure 9-10. Resource analysis (2 of 3)

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Notes:

Resource analysis (3 of 3)

- Qualified resource cost
 - Shows the cost of a resource qualified for a selected role for all periods during which the resource is available in a specific time span
- Qualified resources costs summary
 - Shows the costs of multiple resources qualified for a selected role for all periods the resources are available in a specific time span
- Role cost
 - Shows the cost of a role for all periods during which the role is available between a specified start and end time
- Roles costs summary
 - Shows the costs of multiple roles for all periods during which the roles are available between a specified start and end time

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Figure 9-11. Resource analysis (3 of 3)

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Notes:

Organization model analysis

- Identifies the use and position of organization model elements within structures and structure definitions
 - Entity structure
 - Shows each organization entity's position in all the structures defined for a project
 - For example, selection of any resource, organization unit, or location of the organization entity will display in the analysis results.
 - Type structure
 - Shows the position of a selected type in the structure definitions defined for a project
 - For example, selection of any resource definition, organization definition, or location definition as the type will display in the analysis.

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Figure 9-12. Organization model analysis

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Notes:

General analysis

- Analysis to determine the relationships of model elements
- Used for validation and documentation of your project elements
 - **Type instance matching analysis** shows all the instances of a selected model element type that provides a type definition
 - For example:
 - Organization definition, location definition, individual resource definition

Instance Name	Attributes	Values
Consulting Services		
Human Resources		
	organizationID	
	name	
	type	
	industryType	
	businessType	
	geographicLocation	
	affiliates	
	disbursement	

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Figure 9-13. General analysis

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Notes:

Type instance matching matrix analysis

- **Type instance matching matrix analysis** shows all the instances of a particular model element that provides a type definition.
 - Displays a row for each instance matching the selected type:
 - The first column in the row indicates the instance name.
 - Remaining columns indicate the values of the instance attributes.
- For example, all the elements that match the type “Organization”:

	organizationID	name	type	industryType	businessType	geographicLocation	affiliates	displayName	business
		Consulting Services							
		Human Resources							

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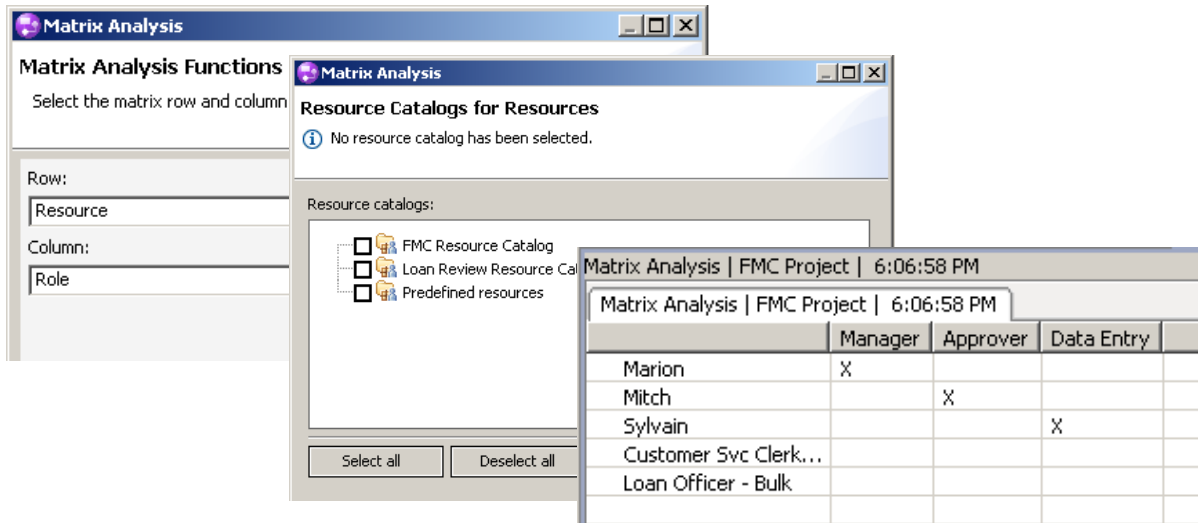
Figure 9-14. Type instance matching matrix analysis

WB284 / VB2841.0

Notes:

Matrix analysis

- Shows the association of a row object (resource) with a column object (role)
 - Resource role matrix analysis shows the relation between the resources and their roles
- Invoked from a context menu in the project tree
- User prompted by a wizard to select the row and column attributes of matrix
- Wizard enables user to select the required models for the selected attributes
- The analysis results are shown in a tabular view and can be printed



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Figure 9-15. Matrix analysis

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Notes:

Checkpoint

1. What are the four fundamentals of model validation?

2. What is the Activities Unable to Start analysis?

3. What is the Activities by Classifier analysis?

4. What is matrix analysis?

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Figure 9-16. Checkpoint

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Notes:

Write your answers here:

- 1.
- 2.
- 3.
- 4.

Unit summary

Having completed this unit, you should be able to:

- Explain the fundamentals of model validation
- Explain the function of static analyses of time, cost, resources, and process flow

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Figure 9-17. Unit summary

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Notes:

Checkpoint solution

1. What are the four fundamentals of model validation?
Syntax, Semantics, Sense, and Standards
2. What is the Activities Unable to Start analysis?
Activities Unable to Start analysis returns a list of the activities of the process that cannot start because of problems with their input criteria or with the size of their resource or role requirements
3. What is the Activities by Classifier analysis?
Activities by Classifier analysis returns the activities of the process that are associated with each classifier value of selected classifiers
4. What is matrix analysis?
Matrix analysis enables the user to select two different types of model elements and to show the associations between model elements of these types

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Figure 9-18. Checkpoint solution

WB284 / VB2841.0

Notes:

Write your answers here:

- 1.
- 2.
- 3.
- 4.

Exercise overview

- Using static analysis from process editor
- Generating the following analyses:
 - Activity cost and duration analysis
 - Activities by classifier analysis
 - Activities by organization unit analysis
 - Resource availability analysis
 - Matrix analysis

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Figure 9-19. Exercise overview

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Notes:

Unit 10. Basic reports and queries

What this unit is about

This unit describes the basic reports and queries.

What you should be able to do

After completing this unit, you should be able to:

- Define reporting and query terminology
- Identify various types of documentation reports
- Print and export reports
- Run predefined queries
- Export the project to MS Office 2007 DOCX format

How you will check your progress

- Checkpoint
- Lab exercises

References

None

Unit objectives

After completing this unit, you should be able to:

- Define reporting and query terminology
- Identify various types of documentation reports
- Print and export reports
- Run predefined queries
- Export the project to MS Office 2007 DOCX format

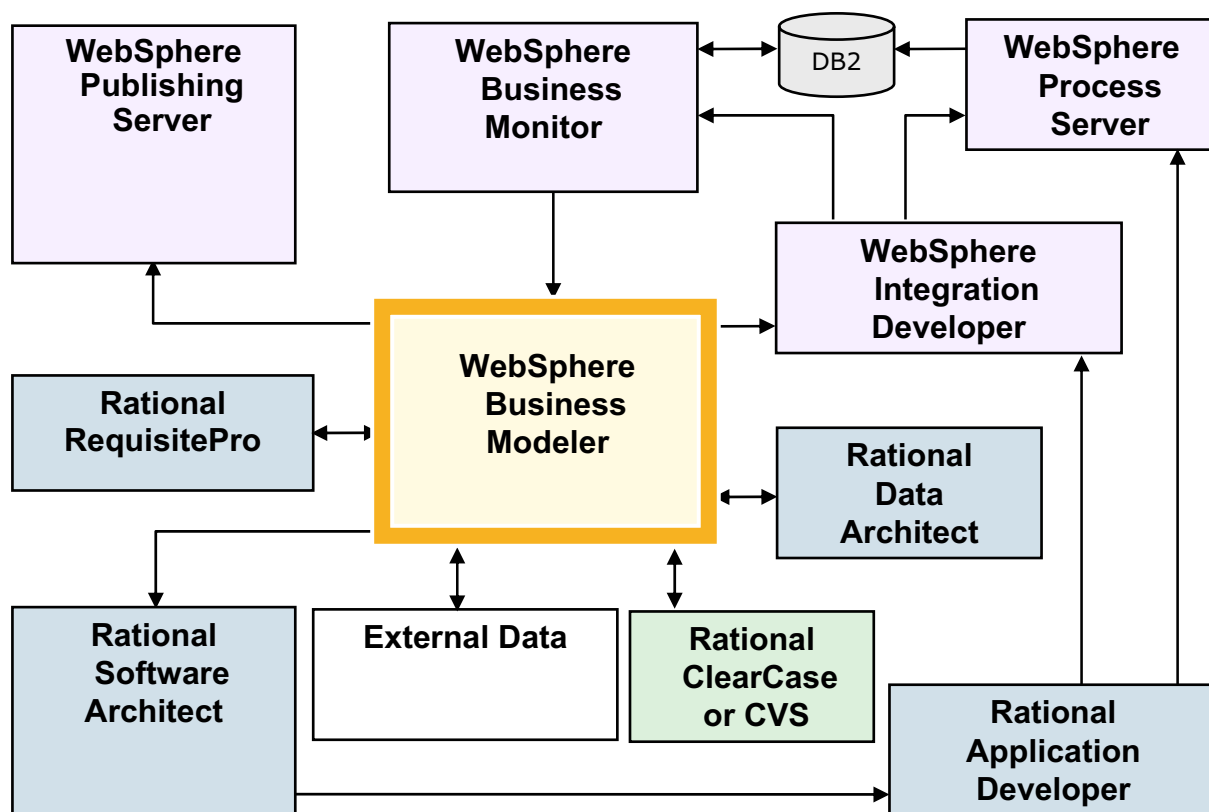
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Figure 10-1. Unit objectives

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Notes:

Creating reports and queries using Modeler



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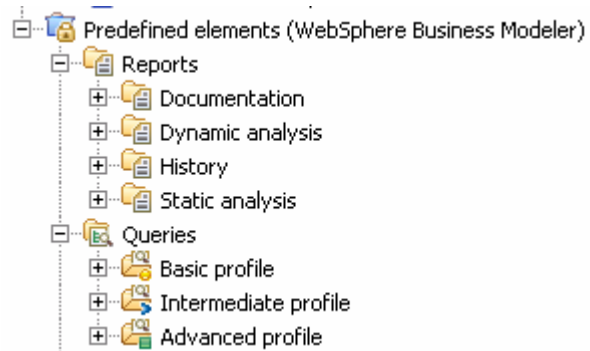
Figure 10-2. Creating reports and queries using Modeler

WB284 / VB2841.0

Notes:

Querying, reporting, and printing

- Queries enable you to extract and view selected information on elements of your models
- Reports are a formatted presentation of information relating to a model or to the results of analyzing a process simulation.
- Reports can be viewed, printed, or exported
- Reports versus queries
 - All predefined queries have a corresponding predefined report based on the query.
 - Use the query to view the information.
 - Use the report if you want to format, print, or save the information
- Diagrams can also be printed or exported



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Figure 10-3. Querying, reporting, and printing

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Notes:

WebSphere Business Modeler terminology: reports

- Report catalogs
 - A container that holds report templates
- Report templates
 - Used to create detailed reports for processes containing specified data
 - Report Designer is used to create report templates that have specific content and a specific format
- Data sources
 - Sets of information derived from elements of a project
 - Can be used as the basis for defining report templates
- Report style master
 - Enables the reuse of header and footer information for multiple report templates

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Figure 10-4. WebSphere Business Modeler terminology: reports

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Notes:

Predefined reports

- Several predefined reports included in the product
- Categories of predefined reports:
 - Documentation reports
 - Predefined documentation report templates generate reports based on predefined queries of model elements.
 - Show the content of models.
 - Static analysis reports
 - Static analysis reports provide a way for you to print, store, and share the results of analyzing process models and other project elements.
 - Dynamic analysis reports
 - Dynamic analysis reports provide a way for you to view, share, and print the results of analyzing process simulation results.
 - History reports
 - History reports show the version history of model elements.

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Figure 10-5. Predefined reports

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Notes:

Documentation reports

- Predefined documentation report templates quickly generate reports based on predefined queries of model elements.
 - Documentation reports show the content of models.
- Documentation report types:
 - Statistics reports
 - Show the number of each element associated to the selected model element
 - Details reports
 - Show the other types of elements, such as resources, roles, organization units, locations, and business items that are associated with the selected element
 - Specification reports
 - Show the values contained in the specification of the selected element
- Documentation report categories:
 - Process reports
 - Extract information on processes, tasks, services, and repositories
 - Data reports
 - Extract information on business items and notifications
 - Resource reports
 - Extract information on resources, roles, and timetables
 - Organization reports
 - Extract information on the contents of organizations and locations

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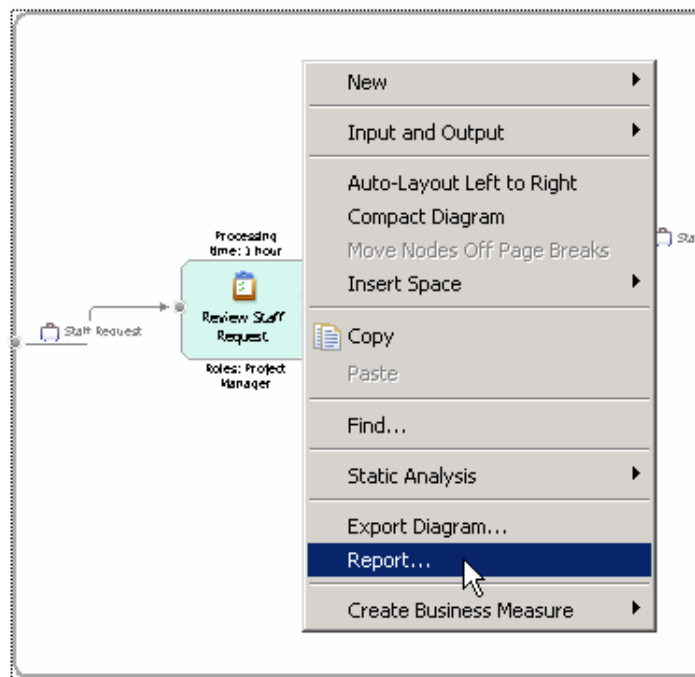
Figure 10-6. Documentation reports

WB284 / VB2841.0

Notes:

Creating a report from the diagram

- Process summary report
 - Supports the diagram with complete documentation
 - Displays summary information for the selected process
- The report includes:
 - The process diagram
 - Process specification
 - Specifications of each element contained in the process



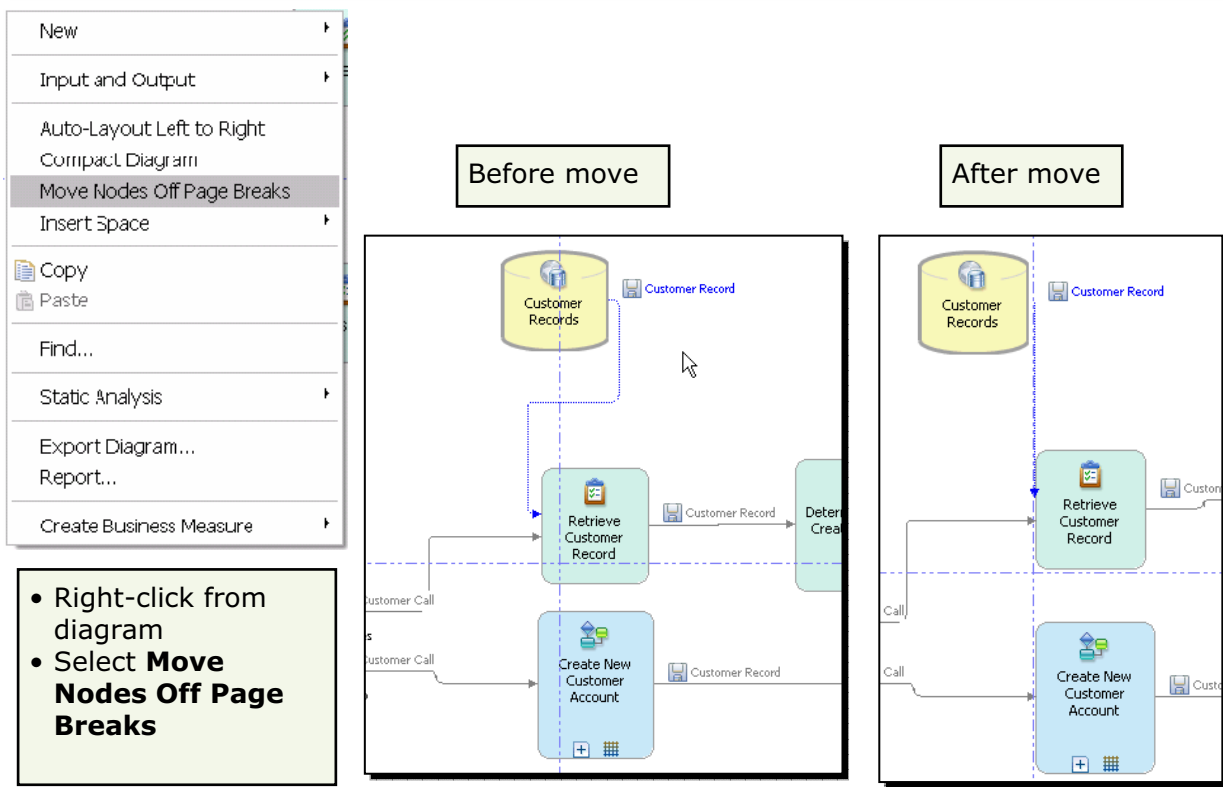
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Figure 10-7. Creating a report from the diagram

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Notes:

Smart page breaks



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Figure 10-8. Smart page breaks

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Notes:

Each process element is entirely contained within a single page for improved viewing and printing of diagrams

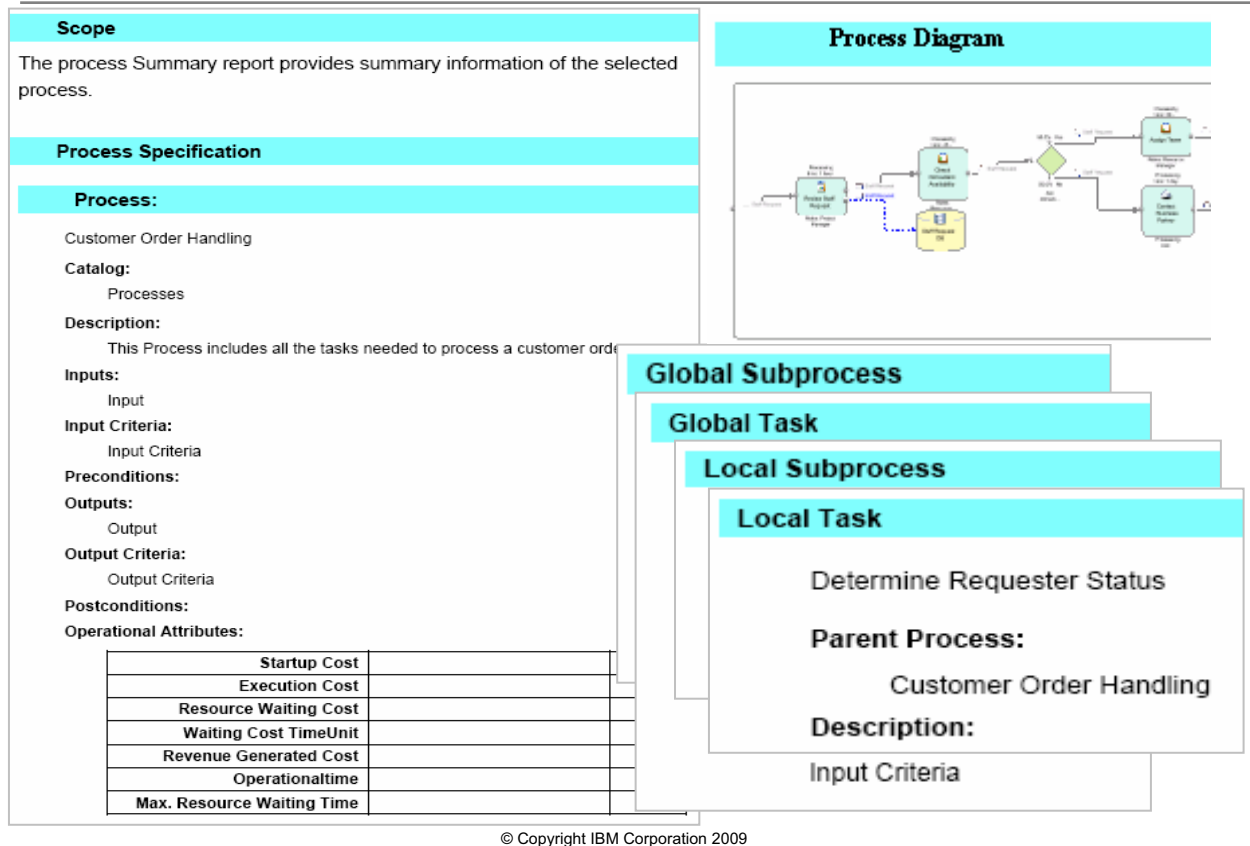
- Can see the page breaks (can turn off)
- To optimize the usability of printed diagrams and diagrams exported to PDF format, you can show the page breaks that will divide a diagram at the time of printing or export, based on the page layout settings for the diagram.
- To show print page breaks on a diagram, you must first display the diagram in an editor.

If a page break overlays a node in the diagram, you can adjust the diagram by changing the position of that node so that it will print on a single page instead of being split across two pages. You can also preview how adjusting the zooming options in the printing setup will affect the position of page breaks.

- To show or hide print page breaks, complete the following steps:
- To show print page breaks on a diagram, click **View > Toggle page break overlay** in the menu bar. Page breaks are displayed on the diagram.

- The diagram might appear on a single page, depending on the size of the diagram and the zoom options that you have selected for the page layout. For example, the diagram will always appear on a single page if you selected the **Fit to page** zoom option.
- To hide print page breaks that are displayed on a diagram, click **View > Toggle page break overlay** again. Page breaks are no longer displayed on the diagram.

Process summary report



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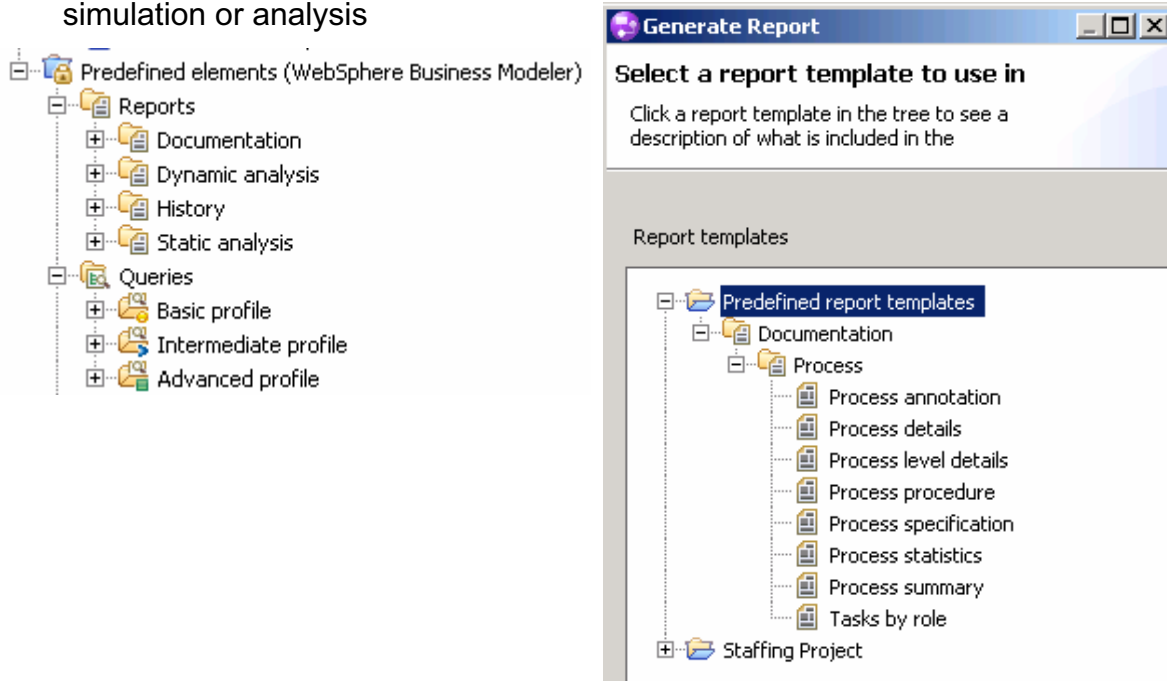
Figure 10-9. Process summary report

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Notes:

Creating a report from the Project Tree

- **Selecting a documentation report template**
 - Generate reports that show the content of models or the results of a process simulation or analysis



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Figure 10-10. Creating a report from the Project Tree

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Notes:

Process reports: process

- Process annotation report
 - Displays the complete text of all annotations contained in a process or in multiple processes in a process catalog
- Process details report
 - Displays the names of elements contained in a process or in multiple processes in a process catalog
- Process level details report
 - Contains details about a main process and all of its component activities and subprocesses
- Process procedure report
 - Shows the sequence of steps within a process, and the relationships of a process to other processes
- Process specification report
 - Shows the information contained in a process specification
- Process statistics report
 - Displays the quantities of elements contained in a process or in multiple processes in a process catalog

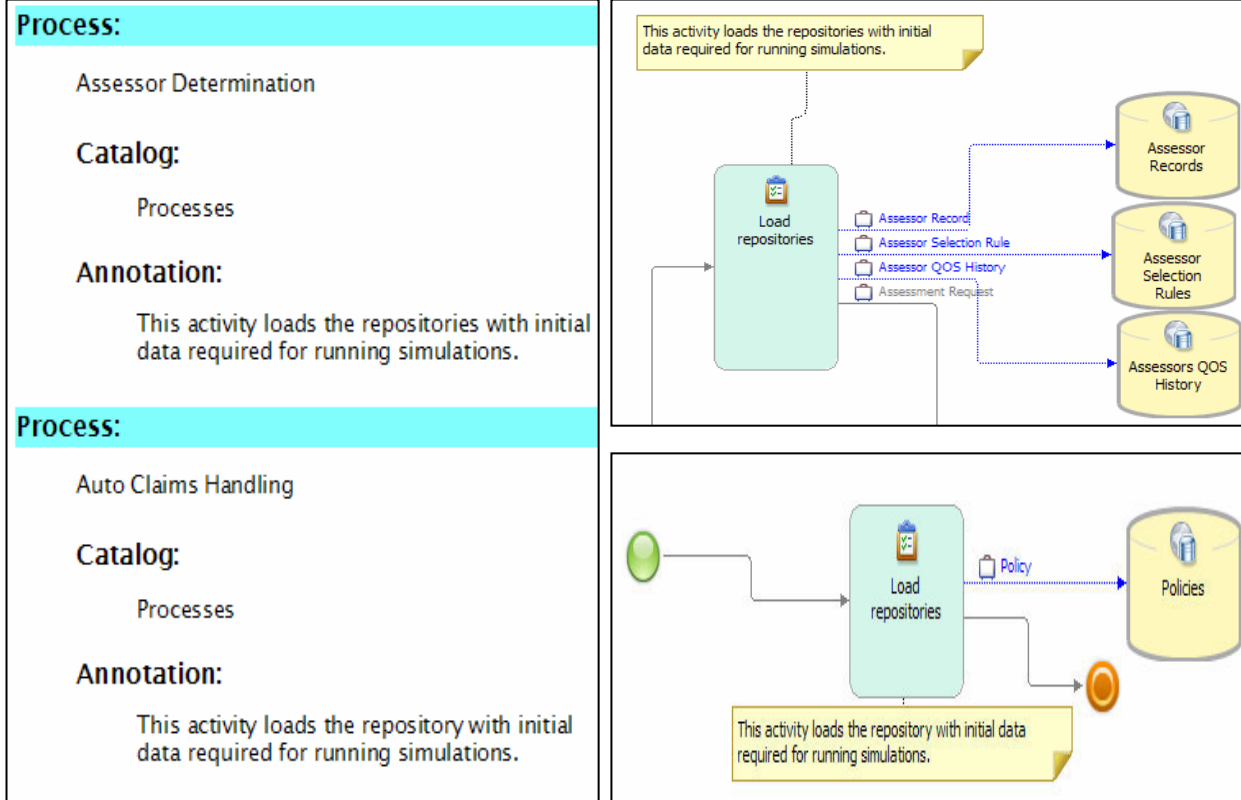
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Figure 10-11. Process reports: process

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Notes:

Process annotation report



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Figure 10-12. Process annotation report

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Notes:

Process procedure report

Connection Steps For Process					
Procedure	Step	Role	Type	Next	Description
1	Identify Customer	Customer Service Representative	Task (local)	2	Determine whether or not the Requester is a new or existing Customer
2	Is Existing Customer?		Decision (exclusive)	3,25	Determine if Requester is or is not a Customer of the Organization
3	Retrieve Customer Record		Task (local)	4	Pull up the customer record from the database.
4	Determine Whether To Create Or Update An Order	Customer Service Representative	Task (local)	5	
5	Calling About Existing Order?		Decision (exclusive)	6,23	Determine if the Customer is calling to place a new order or update an existing one.
6	Retrieve Customer Order		Task (local)	7	
7	Review Order With Customer	Customer Service Representative	Task (local)	8	
8	Order Satisfactory?				
9	Thank Customer And End Call	Customer Service Representative			
10	Modify Customer Order	Customer Service Representative			
11	Merge:2				
12	Apply Special Pricing				

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Figure 10-13. Process procedure report

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Notes:

The *process procedure* report shows the sequence of steps within a process, and the relationships of a process to other processes.

Process level details report

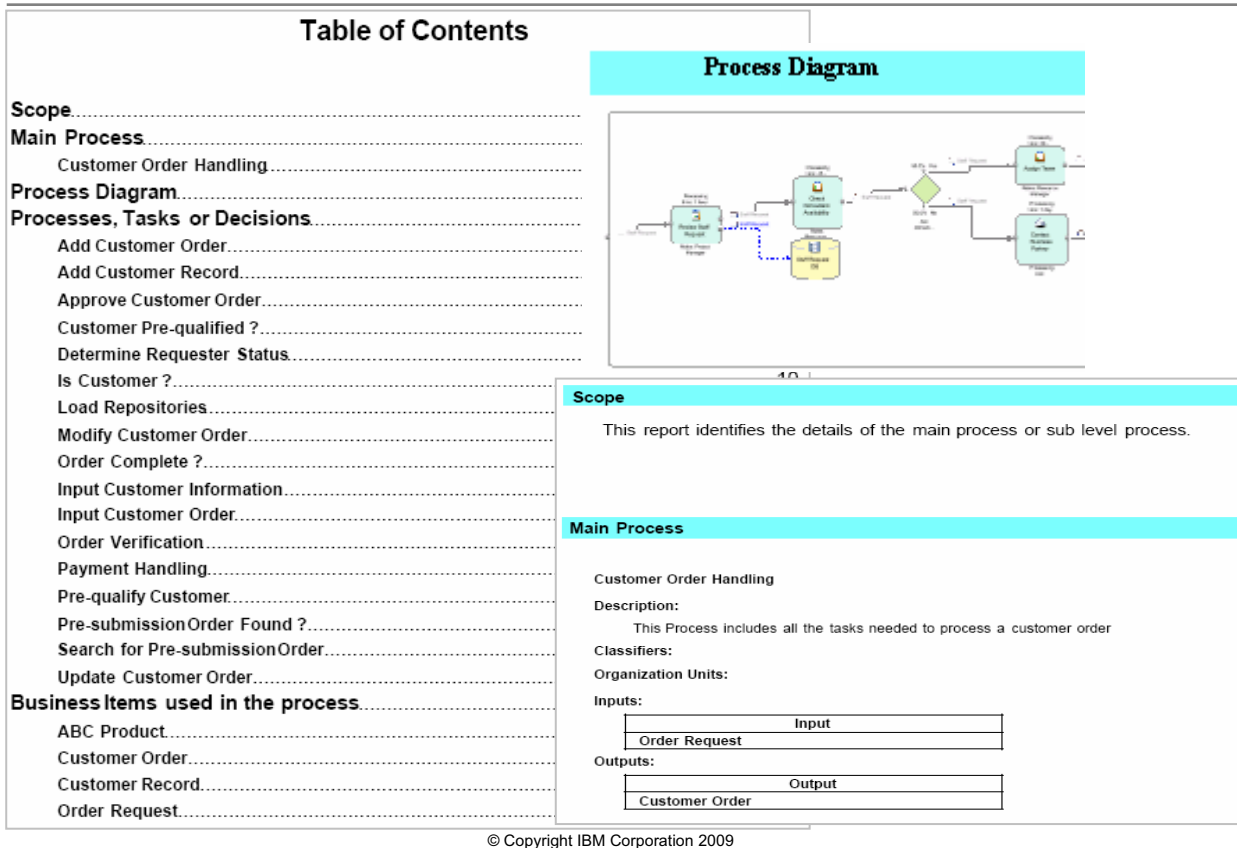


Figure 10-14. Process level details report

WB284 / VB2841.0

Notes:

The process level details report contains details about a main process and all of its component activities and subprocesses.

For each process or activity, this report lists the following:

- Activity type
- Description
- Classifiers
- Organization Units
- Roles
- Inputs
- Outputs

The report also lists the business items used in the process, the attributes of the business item, and which activities use the business item.

Process reports: repository and service

- Repository specification report
 - Shows the information contained in a repository specification
- Service details report
 - Displays the names of elements contained in a service or in multiple services in a process catalog
- Service specification report
 - Shows the information contained in a service specification
- Service statistics report
 - Displays the quantities of elements contained in a service or in multiple services in a process catalog

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Figure 10-15. Process reports: repository and service

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Notes:

Service and repository specification reports

Service Specification

Service:

Credit Verification Service

Catalog:

Description:

Use of an external Credit Bureau service to verify the customer's credit status

Inputs:

Input

Input Criteria:

Input Criteria

Preconditions:

Outputs:

Output

Output Criteria:

Output Criteria

Postconditions:

Operation Attributes:

Startup Cost		
Execution Cost	4.5	USD
Resource Waiting Cost		
Waiting Cost Time Unit		
Revenue Generated Cost		
Operational Time	P0Y0M1DT0H0M0S	
Max. Resource waiting Time		

Repository Specification

Repository:

Customer Orders

Catalog:

Processes

Description:

Type:

Customer Order

Capacity:

-1

Repository:

Customer Records

Catalog:

Processes

Description:

Type:

Customer Record

Capacity:

-1

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Figure 10-16. Service and repository specification reports

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Notes:

Capacity: a value of -1 means unlimited.

Process reports: task

- Task details report
 - Displays the names of elements contained in a task or in multiple tasks in a process catalog
- Tasks by role report
 - Identifies all the tasks in a process that are performed by a specified role
- Task specification report
 - Shows the information contained in a task specification
- Task statistics report
 - Displays the quantities of elements contained in a task or in multiple tasks in a task catalog

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Figure 10-17. Process reports: task

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Notes:

Task specification, statistics, by role

Task Specification		Model Specification		Tasks By Role																															
Task: Input Customer Information Catalog: Processes Description: Inputs: Input Input Criteria: Input Criteria Preconditions: Outputs: Output Output Criteria: Output Criteria Postconditions: Operational Attributes: <table border="1"> <tr><td>Startup Cost</td><td></td></tr> <tr><td>Execution Cost</td><td></td></tr> <tr><td>Resource Waiting Cost</td><td></td></tr> <tr><td>Waiting Cost Time Unit</td><td></td></tr> <tr><td>Revenue Generated Cost</td><td></td></tr> <tr><td>Operational Time</td><td></td></tr> <tr><td>Max. Resource WaitingTime</td><td></td></tr> </table> Classifiers:		Startup Cost		Execution Cost		Resource Waiting Cost		Waiting Cost Time Unit		Revenue Generated Cost		Operational Time		Max. Resource WaitingTime		Task Statistics Statistics Task: Input Customer Information Catalog: Processes <table border="1"> <tr><td>Individual Resources</td><td>0.0</td></tr> <tr><td>Bulk Resources</td><td>0.0</td></tr> <tr><td>Roles:</td><td>1.0</td></tr> <tr><td>Organization Units:</td><td>0.0</td></tr> <tr><td>Locations:</td><td>0.0</td></tr> <tr><td>Business Items:</td><td>1.0</td></tr> </table>		Individual Resources	0.0	Bulk Resources	0.0	Roles:	1.0	Organization Units:	0.0	Locations:	0.0	Business Items:	1.0	Tasks Performed By Customer Service Representative In Customer Order Handling Input Customer Information Type: Input Customer Information Description: Classifiers: Organization Units: Role: Customer Service Representative Inputs: <table border="1"> <tr><td>Associated Data</td></tr> <tr><td>Order Request</td></tr> </table> Outputs: <table border="1"> <tr><td>Associated Data</td></tr> <tr><td>Customer Record</td></tr> </table>		Associated Data	Order Request	Associated Data	Customer Record
Startup Cost																																			
Execution Cost																																			
Resource Waiting Cost																																			
Waiting Cost Time Unit																																			
Revenue Generated Cost																																			
Operational Time																																			
Max. Resource WaitingTime																																			
Individual Resources	0.0																																		
Bulk Resources	0.0																																		
Roles:	1.0																																		
Organization Units:	0.0																																		
Locations:	0.0																																		
Business Items:	1.0																																		
Associated Data																																			
Order Request																																			
Associated Data																																			
Customer Record																																			

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Figure 10-18. Task specification, statistics, by role

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Notes:

Data reports

- Business item instance specification report
 - The business item instance specification report details the attributes of each business item instance in a model.
- Business item specification report
 - The business item specification report shows the information contained in a business item specification.
- Business item template specification report
 - The business item template specification report identifies the attributes of each business item template in the model.
- Business item utilization report
 - The business item utilization report identifies all the business items in a model, including information about the utilization of each business item.
- Data catalog statistics report
 - The data catalog statistics report displays the quantities of elements contained in a data catalog that you select for inclusion in the report.
- Notification specification report
 - The notification specification report shows the information contained in a notification specification.

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Figure 10-19. Data reports

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Notes:

Business item specification and utilization reports

Specification

Business Item:	
Customer Order	
Catalog:	
Business items	
Description:	
Attributes:	
Attribute Name	Attribute Type
Customer Address	Address
Pay by Credit Card	Boolean
Pay by Cash or Check	Boolean
Credit Status	String
Order Item	ABC Product
Available Order Item	Boolean
Rules:	
Rule Name	Rule Description

Utilization

Order Request	
Description:	
Attributes:	
Attribute Name	Attribute Type
Customer Number	Integer
Requester Address	Address
Order Items	ABC Product
Used By:	
Name	Input or Output
Determine Requester Status	input
Determine Requester Status	output
Customer Order Handling	input

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Figure 10-20. Business item specification and utilization reports

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Notes:

Resource reports

- Resource catalog statistics report
 - The resource catalog statistics report displays the quantities of elements contained in a resource catalog that you select for inclusion in the report.
- Resource specification report
 - The resource specification report shows the information contained in a resource specification.
- Role specification report
 - The role specification report shows the information contained in a role specification.
- Timetable specification report
 - The timetable specification report shows the information contained in a timetable specification.

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Figure 10-21. Resource reports

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Notes:

Role and resource specification

Role Specification	
Role:	
Account Analyst	
Catalog:	
Resources	
Description:	
Interacts with customer to provide billing and account se	
Scope Dimension Names:	
Role:	
Account Manager	
Catalog:	
Resources	
Description:	
Manages Account Analysts and services customer to pro	
services	
Scope Dimension Names:	

Resource Specification	
Individual Resource:	
Name	AI Billings
Catalog	Resources
Instance Of	Staff
Description	
Individual Resource:	
Name	CRM Application
Catalog	Resources
Instance Of	Software Application
Description	
One Time Cost:	
Applicable To:	
Cost:	USD 5.25

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Figure 10-22. Role and resource specification

WB284 / VB2841.0

Notes:

Organization reports

- Organization catalog statistics report
 - The organization catalog statistics report displays the quantities of elements contained in a organization catalog that you select for inclusion in the report.
- Organization unit specification report
 - The organization unit specification report shows the information contained in a organization unit specification.
- Location specification report
 - The location specification report shows the information contained in a location specification.

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Figure 10-23. Organization reports

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Notes:

Organization unit and location specification

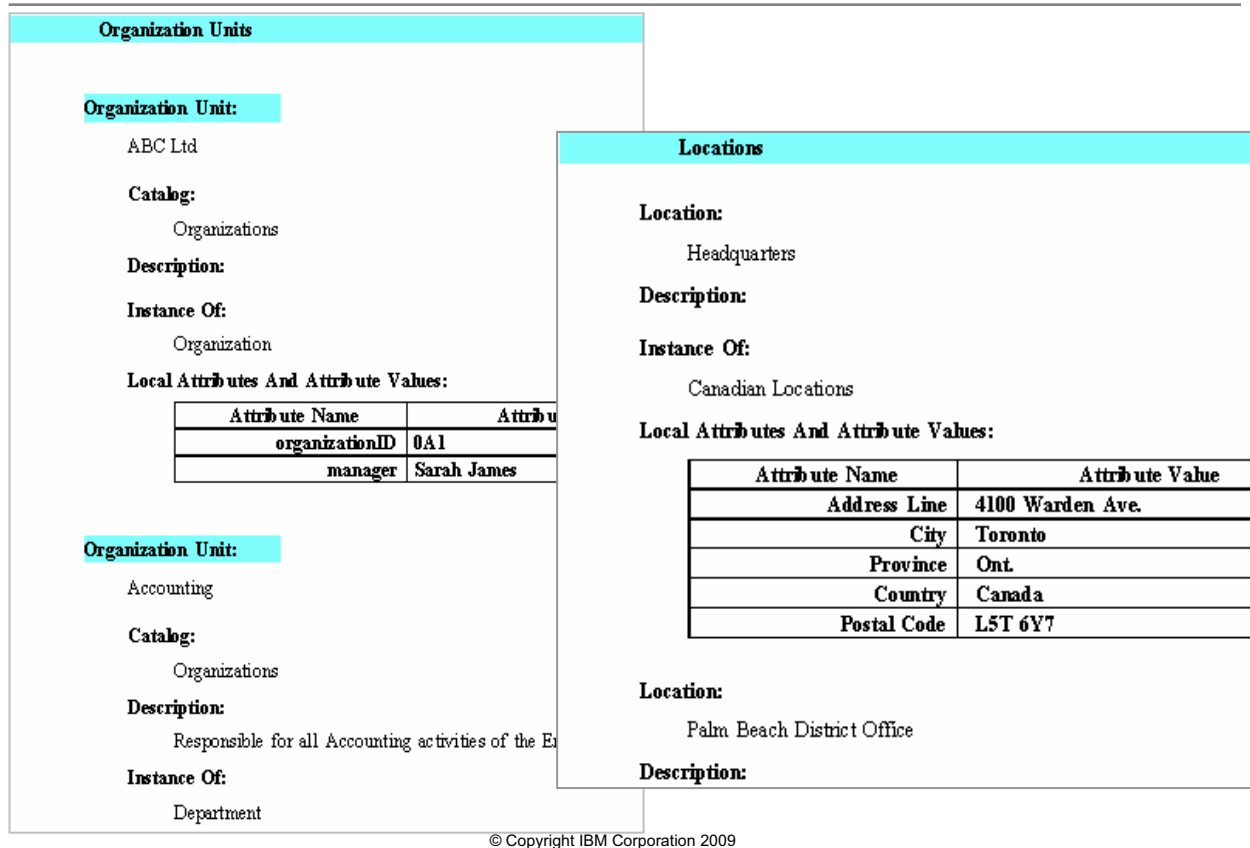
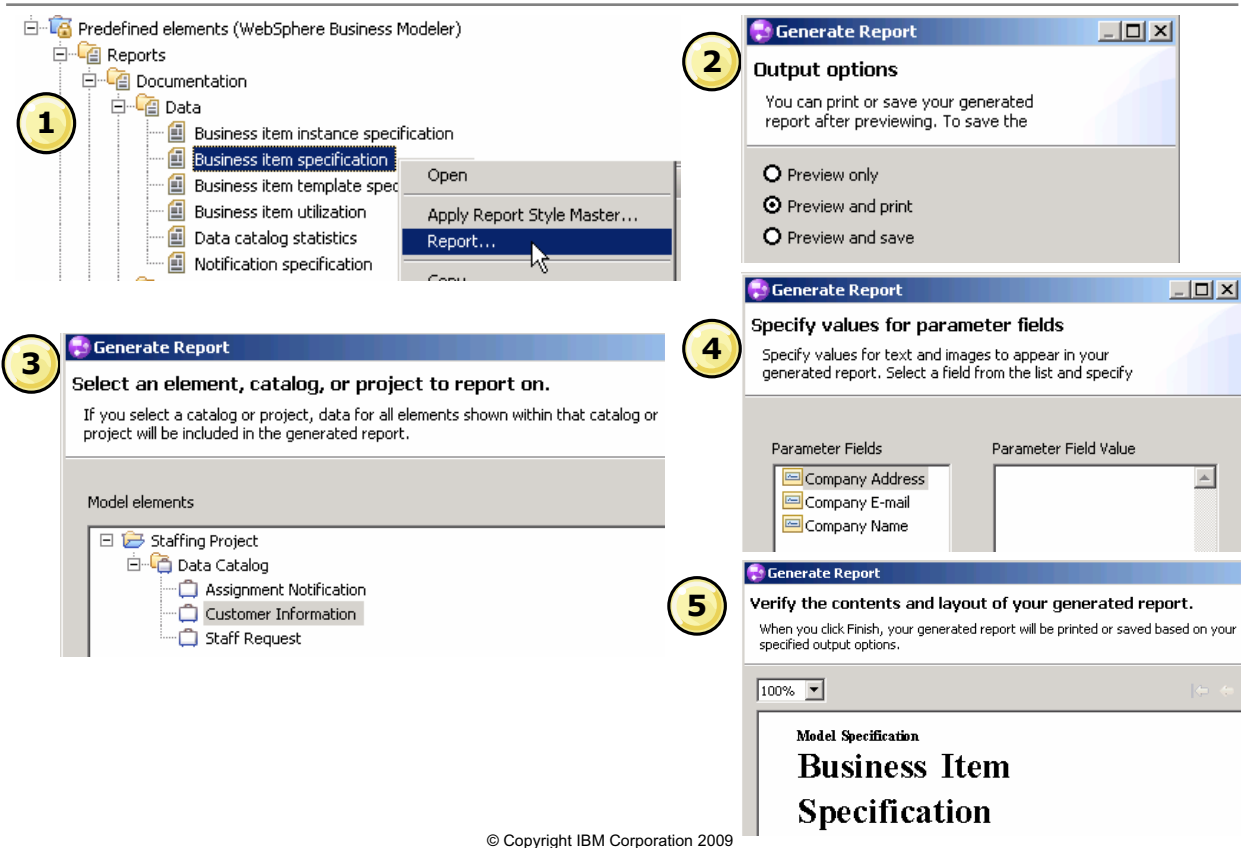


Figure 10-24. Organization unit and location specification

WB284 / VB2841.0

Notes:

Generating and printing reports



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Figure 10-25. Generating and printing reports

WB284 / VB2841.0

Notes:

Copy and paste generated reports

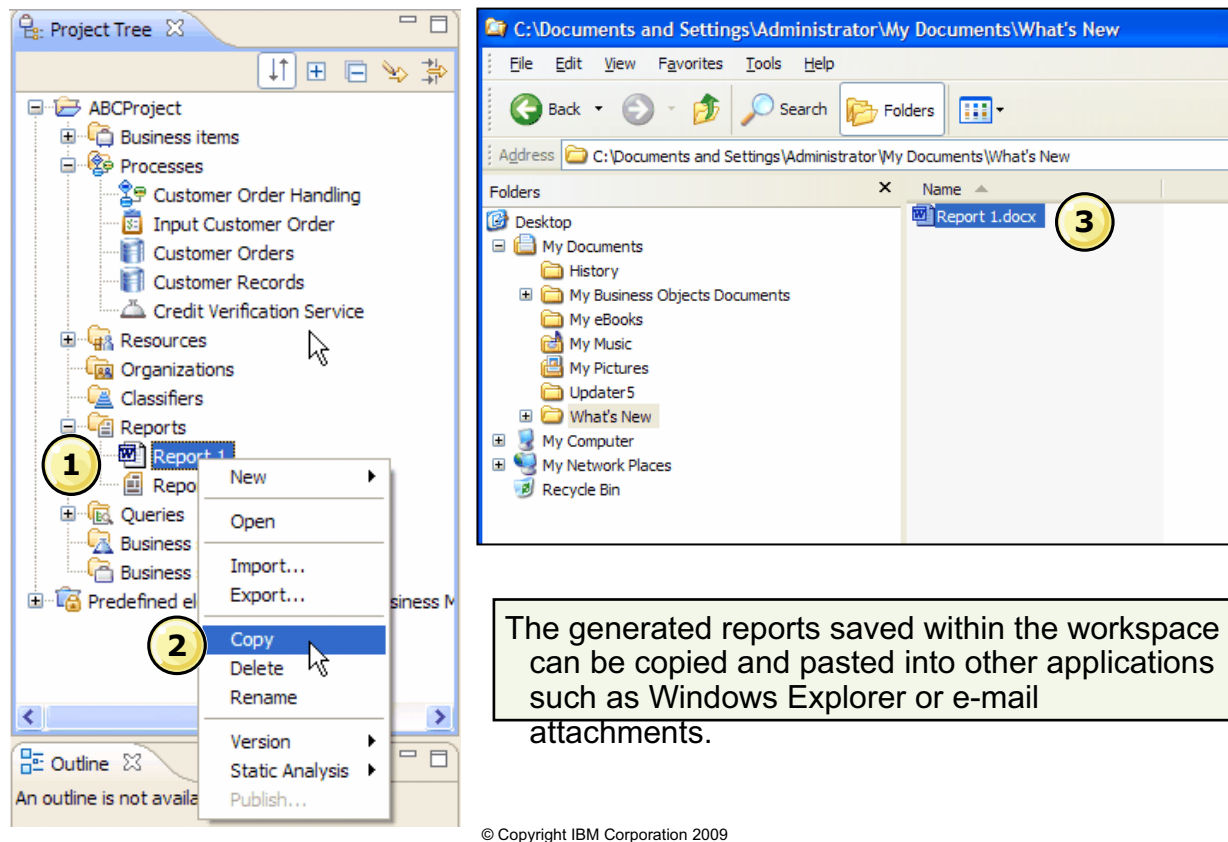
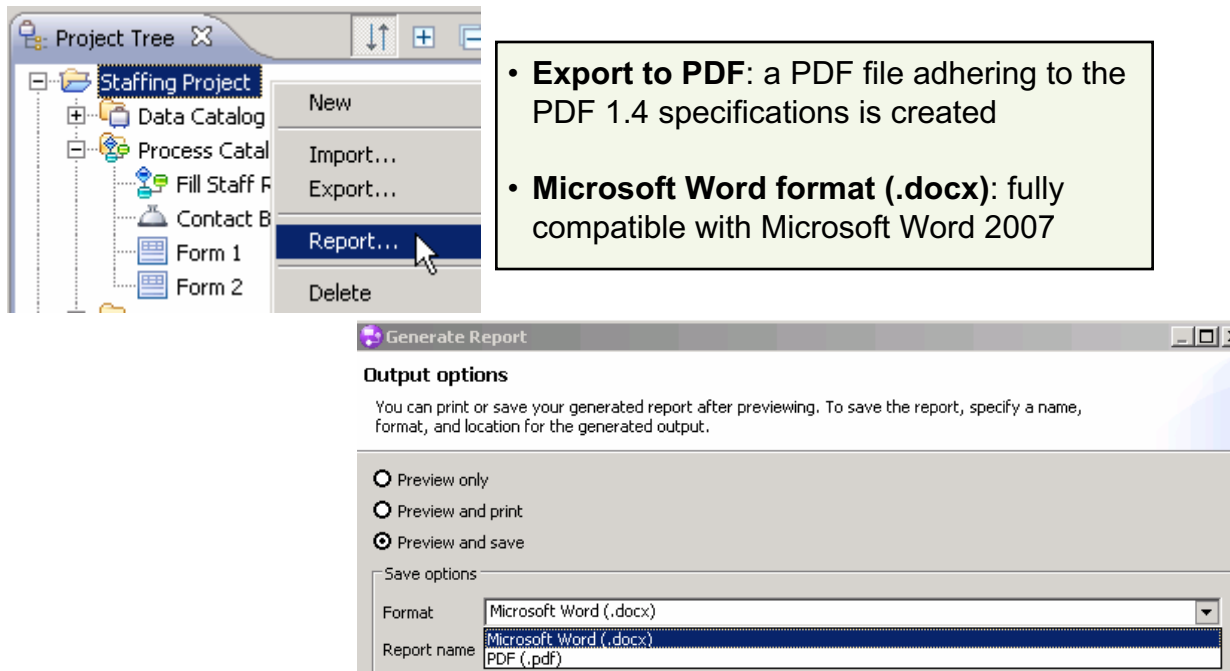


Figure 10-26. Copy and paste generated reports

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Notes:

Exporting a report



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Figure 10-27. Exporting a report

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Notes:

Exporting reports allows you to deploy the information contained in your models for a variety of purposes and to two formats: Microsoft Word document and PDF file.

Export to PDF

When you export a report to PDF format, a PDF file adhering to the PDF 1.4 specifications is created. This level PDF is compatible with Adobe Acrobat reader Version 5 and later, as well as a wide variety of other readers and editors.

Microsoft Word format

When you export to Microsoft Word format, a Microsoft Word (.docx) document is created. The Word document is fully compatible with Microsoft Word 2007. If you, additionally, have Microsoft Excel installed, you will be able to edit any charts that appear in the report. Without having Excel installed, the charts will be displayed, but not editable.

If you do not have Microsoft Office 2007, you can still use the resulting document with Microsoft Office XP and 2003, but will need to install the Microsoft Office Compatibility Pack for 2007 Office, Word, Excel and PowerPoint File Formats. This update is available

from the Microsoft Web site (<http://www.microsoft.com>). When you use this compatibility pack to open the exported reports, any charts will be converted to bitmap graphics, and will become uneditable.

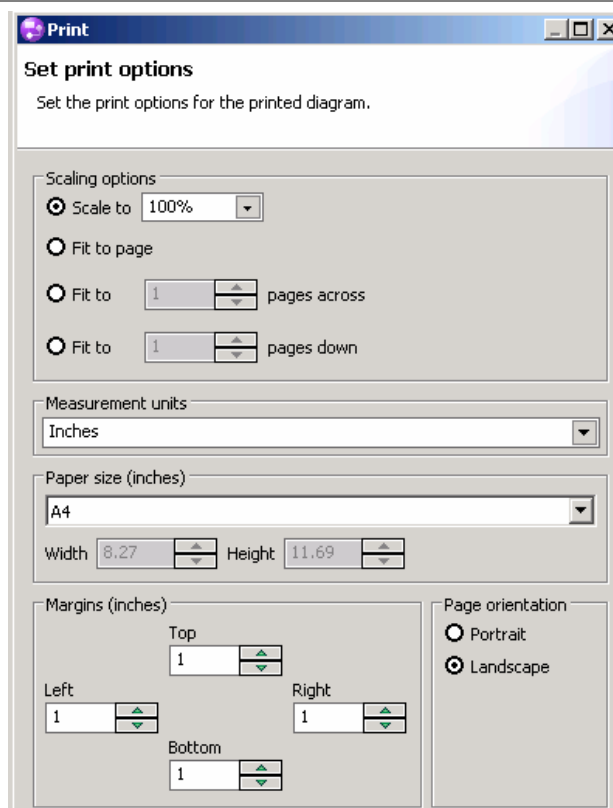
Limitations for Microsoft Word format

The following limitations apply to reports that you export to Microsoft Word format:

- Page numbers that are specified as variable in the report, such as Page N of M are displayed as Page ? of ? in the generated Word document. However, when the exported report is modified or printed, the values are correctly updated.
- The word “o'clock” will not show up in the time format for some locales, such as en_CA.
- The time zone will not appear in fields providing time information.
- Ellipses, lines, and other user-drawn graphic elements may not appear correctly when using Microsoft Office XP and 2003.

Printing a diagram

- Open the diagram editor
- Click **File > Print**
- Set print options (paper size, margins)
- Click **Finish**



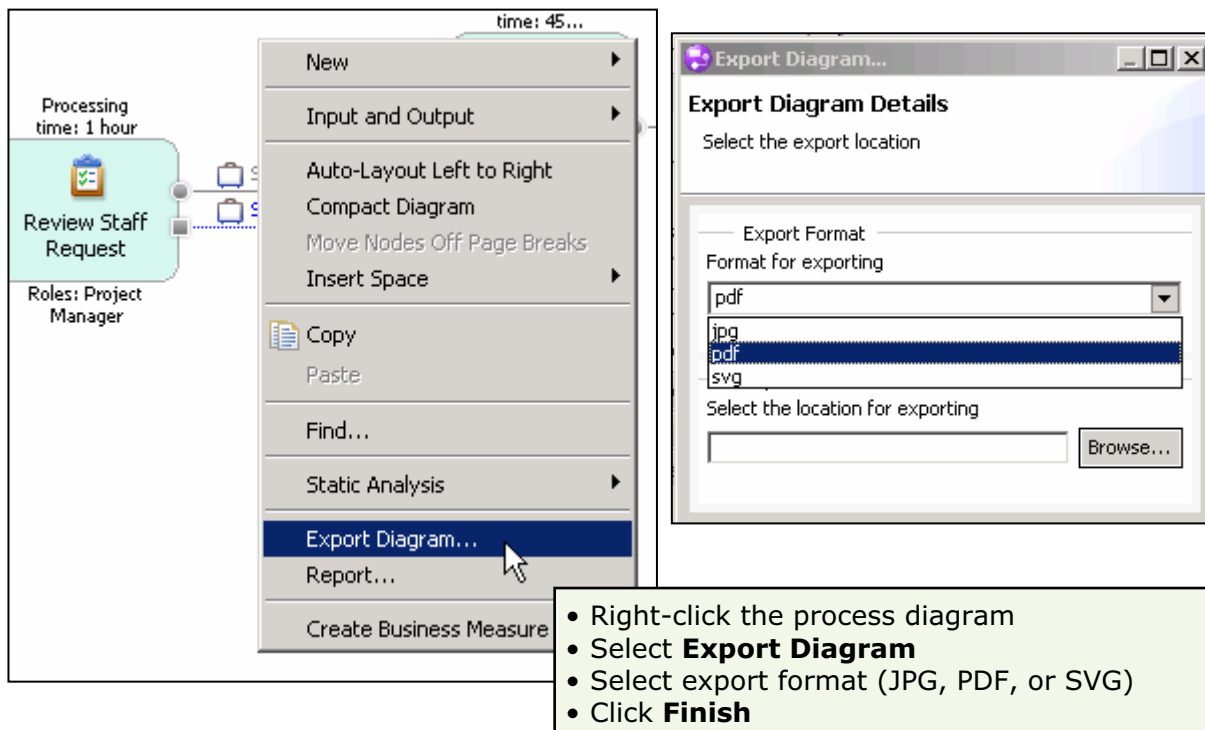
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Figure 10-28. Printing a diagram

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Notes:

Export a diagram



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Figure 10-29. Export a diagram

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Notes:

Queries

- Queries extract and show information on elements in models
 - Queries return information about model elements of one specified type
- Use queries to:
 - Confirm that the content of your models accurately represents your business
 - Gather required information for making business decisions
 - Document and disseminate specific types of information
 - Define the content that is used for creating reports
- A variety of documentation queries are available:
 - Statistics queries
 - Return the number of elements associated with the selected model element
 - Details queries
 - Return element names, such as resources, roles, organization units, locations, and business items, that are associated with the selected element
 - Specification queries
 - Return the values contained in the specification of the selected element

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Figure 10-30. Queries

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Notes:

The following documentation queries are provided:

- Business item instance specification
- Business item specification
- Business item template specification
- Location definition specification
- Location definition template specification
- Location specification
- Notification specification
- Organization definition specification
- Organization definition template specification
- Organization unit specification
- Process details

- Process specification
- Process statistics
- Repository specification
- Resource definition specification
- Resource definition template specification
- Resource specification
- Role specification
- Service details
- Service specification
- Service statistics
- Task details
- Task specification
- Task statistics
- Timetable specification

Checkpoint

1. What is the Process Procedure report?

2. What is the Business Item Utilization report?

3. What is a Resource Specification report?

4. What is the function of queries in WebSphere Business Modeler?

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Figure 10-31. Checkpoint

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Notes:

Write your answers here:

- 1.
- 2.
- 3.
- 4.

Unit summary

Having completed this unit, you should be able to:

- Define reporting and query terminology
- Identify various types of documentation reports
- Print and export reports
- Run predefined queries
- Export the project to MS Office 2007 DOCX format

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Figure 10-32. Unit summary

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Notes:

Checkpoint solution

1. What is the Process Procedure report?

The Process Procedure report shows the sequence of steps within a process, and the relationships of a process to other processes

2. What is the Business Item Utilization report?

The Business Item Utilization report identifies all the business items in a model, including information about the utilization of each business item

3. What is a Resource Specification report?

The Resource Specification report shows the information contained in a resource specification which shows the values contained in the specification of the selected element

4. What is the function of queries in WebSphere Business Modeler?

Queries can be used to confirm that the content of your models accurately represents your business, to gather required information for making business decisions, to document and disseminate specific types of information, and also to define the content that is used for creating reports

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Figure 10-33. Checkpoint solution

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Notes:

Exercise overview

In this exercise, you will:

- Generate and exporting predefined report
- Run a predefined query
- Print the process diagram

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Figure 10-34. Exercise overview

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Notes:

Unit 11. Project management, methodology, and approaches

What this unit is about

This unit describes the Project management, methodology, and approaches

What you should be able to do

After completing this unit, you should be able to:

- Describe process analysis methodology and scoping
- Explain the importance of process modeling standards
- Define a project organization
- Describe team dynamics
- Explain the concept of loop-back for continuous improvement
- Explain how Modeler supports Six Sigma

How you will check your progress

- Checkpoint
- Lab exercises

References

None

Unit objectives

After completing this unit, you should be able to:

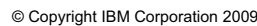
- Describe process analysis methodology and scoping
- Explain the importance of process modeling standards
- Define a project organization
- Describe team dynamics
- Explain the concept of loop-back for continuous improvement
- Explain how Modeler supports Six Sigma

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Figure 11-1. Unit objectives

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Notes:



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Notes:

Reasons for modeling processes

- There are many reasons for modeling processes throughout the project.
- The benefits of the model may include any or all of the following:
 - Documenting the current process
 - Creating a common understanding
 - Identifying areas for improvements
 - Defining a common vision of a future process
 - Developing requirements for new organizations and technology
 - Continuous monitoring and improvement
 - Educating process participants
 - Providing the baseline for a new or improved technical solution

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Figure 11-3. Reasons for modeling processes

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Notes:

Business process methodology

- A business process methodology is a systematic way of examining the processes of a business to identify and correct inefficiencies in how the business operates. The values of following a methodology are:
 - A common way for individual team members to operate
 - A defined set of processes and the expected result of each process
 - A context for the results so that they can be properly analyzed by the modeling team and by others such as management, consultants, and IT personnel
 - A way to schedule the delivery of these results
- The important point is that WebSphere Business Modeler is neutral toward business process methodologies.
 - It does not support or implement a particular methodology.
 - Instead, it is a tool that business analysts can use within their own methodology to store business process data and analyze it.

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Figure 11-4. Business process methodology

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Notes:

Entry point for the common modeling approaches

- WebSphere Business Modeler provides optimal results when the business process methodology involves three types of models:
 - The **current model**: an accurate representation of the business processes as they are currently working. It has two primary purposes:
 - To identify problem areas such as bottlenecks and inefficiencies
 - To serve as a baseline for the second state
 - A set of what-if **alternative models** that solve in various ways the problems identified in the first state
 - One model is identified as the best way to implement the business processes: the process **future model**
- When the process future model has been selected, it can be used as the baseline **technical model** (for example, BPEL or UML) used by other WebSphere tools
 - IT personnel can use it as the starting point to create deployable applications that support the new business processes
 - The process future model also serves as a foundation for building the current model in the next iteration of business process modeling
 - Used by WebSphere Business Monitor to provide performance feedback on the implemented model

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Figure 11-5. Entry point for the common modeling approaches

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Notes:

Common process modeling approaches

Modeling approach	Scope	Outcome
Business process modeling	<ul style="list-style-type: none"> As-is models are created and problems analyzed, to-be models are created and used to determine differences and ROI. 	<ul style="list-style-type: none"> As-is and to-be models Process documentation Cost benefit analysis
Enterprise modeling	<ul style="list-style-type: none"> Process models are created in sufficient detail to complete the related procedures. 	<ul style="list-style-type: none"> Published process models Published procedures
E-business process modeling	<ul style="list-style-type: none"> As-is and to-be models are created with a focus on B2B and B2C touch points (supply chain). 	<ul style="list-style-type: none"> As-is and to-be models (partners) Customized redesign report Supply chain comparisons
Business measure modeling	<ul style="list-style-type: none"> Process models are created to document runtime metrics measure business performance. 	<ul style="list-style-type: none"> Process models with defined performance measures Performance system requirements
Business process system requirements modeling	<ul style="list-style-type: none"> Extends the process models into IT integration, requirements, and planning. 	<ul style="list-style-type: none"> To-be models UML models User interface designs
Business process workflow integration modeling	<ul style="list-style-type: none"> Extends the process models into executing workflow templates. 	<ul style="list-style-type: none"> To-be workflow model Flow definition language

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Figure 11-6. Common process modeling approaches

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Notes:

Core phases of the common modeling approaches (1 of 2)

Phase	Description	Deliverables
Kick-off	<ul style="list-style-type: none"> • Define organization goals • Define methodology • Review supporting documentation 	<ul style="list-style-type: none"> • Project plan • Definition of deliverables
Design goals	<ul style="list-style-type: none"> • Define and understand how the future process will be performed 	<ul style="list-style-type: none"> • Future modeling session outline
Data gathering	<ul style="list-style-type: none"> • Review documentation • Interview subject matter experts • Determine documentation gaps 	<ul style="list-style-type: none"> • Interview notes • Initial "straw man" process models
Current model	<ul style="list-style-type: none"> • Create current process models 	<ul style="list-style-type: none"> • Current process models
Associate data and definitions	<ul style="list-style-type: none"> • Associate policies, rules, goals, interactions, standards, data, and so forth 	<ul style="list-style-type: none"> • Complete process documentation with associated data
Current analysis	<ul style="list-style-type: none"> • Conduct analysis • Document findings 	<ul style="list-style-type: none"> • Preliminary current times and costs
Current validation	<ul style="list-style-type: none"> • Review with subject matter experts • Make necessary changes 	<ul style="list-style-type: none"> • Validated current process models • Updated current process models
Current signoff	<ul style="list-style-type: none"> • Sign off current process models 	<ul style="list-style-type: none"> • Completed current process models

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Figure 11-7. Core phases of the common modeling approaches (1 of 2)

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Notes:

Core phases of the common modeling approaches (2 of 2)

Phase	Description	Deliverables
Alternative models	<ul style="list-style-type: none"> • Create alternative process models 	<ul style="list-style-type: none"> • Alternative process models
Comparison analysis	<ul style="list-style-type: none"> • Calculate the model differences • Document the comparison metrics 	<ul style="list-style-type: none"> • Process redesign report
Future model	<ul style="list-style-type: none"> • Select future process model 	<ul style="list-style-type: none"> • Future process model
Future validation	<ul style="list-style-type: none"> • Review with subject matter experts • Make necessary changes 	<ul style="list-style-type: none"> • Validated future process models • Updated future process models
Future signoff	<ul style="list-style-type: none"> • Sign off future process models 	<ul style="list-style-type: none"> • Completed future process models
Technical model	<ul style="list-style-type: none"> • Create technical process models 	<ul style="list-style-type: none"> • Technical process models for export
Preparation of final report	<ul style="list-style-type: none"> • Verify final deliverables • Complete analysis • Complete final deliverables 	<ul style="list-style-type: none"> • Custom redesign report • Signed-off deliverables

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Figure 11-8. Core phases of the common modeling approaches (2 of 2)

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Notes:

Comparison of process modeling approaches

Approach phase	Business process modeling	Enterprise modeling	E-business process modeling	Business measure modeling	Business process system requirements modeling	Business process workflow integration modeling
Kick-off	X	X	X	X	X	X
Design goals	X	X				
Data gathering	X	X	X	X	X	X
Current modeling	X	Enterprise process modeling	X	Process measures modeling	Process modeling	Workflow process modeling
Associate appropriate documentation and definitions	X	Enterprise information	Partner interactions	Process performance measure doc	Process documentation	Workflow process definitions
Current analysis	X					
Current validation	X		X			X
Current sign-off	X		X			
Alternative modeling	X					
Comparison analysis	X		X			
Future modeling	X		Partner interactions		Creation or association of user interface	
Future validation	X		X			
Future sign-off	X					
Create technical model	X				Creation or association of UML models	Workflow process model FDL creation
Prepare final report	X	X	X	X	X	X

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Figure 11-9. Comparison of process modeling approaches

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Notes:

It is important to understand the reason for the model and then select the appropriate phases for your modeling approach. Many projects are a combination of one or more approaches.

Understanding the business problem

- Examine the process in the context of the project objectives
 - Projects to solve business problems are usually defined long before the process to be analyzed is identified.
 - It is important to understand the business problem before committing to the type of modeling to be done.
 - What is the project attempting to accomplish?
 - What is included within the scope of the project?
 - What is the project time frame?
 - What is the project organization?
 - What are the deliverables?
 - What are the expected potential benefits?

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Figure 11-10. Understanding the business problem

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Notes:

Define contribution of process to business goals

- When you know the context of the process, you can better assess the contribution of the process to the goals.
- During the what-if alternative modeling these goals will be the design drivers in your performance comparisons to select the process redesign that will, for example:
 - Eliminate the complexities of resource sharing that impact process efficiency
 - Improve communication of among interdependent tasks and eliminate or reduce unique handling requirements
 - Reduce or redesign critical constraint points in a process to streamline or improve resource availability
 - Eliminate exception execution of processes that result in performance degradation and extra resource usage

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Figure 11-11. Define contribution of process to business goals

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Notes:

Define context and purpose of the process model

- Understanding the context and purpose of the process model helps you define the process model scope
 - Explore the critical task of defining the boundaries of the business process model — the scope.
 - The scope of a project provides guidelines for modeling, analysis, and design
 - The scope of a process model clearly identifies the area of a business to be included in the project
 - A subprocess
 - One or more processes
 - One or more departments
 - One or more divisions
 - The whole organization
 - Multiple organizations

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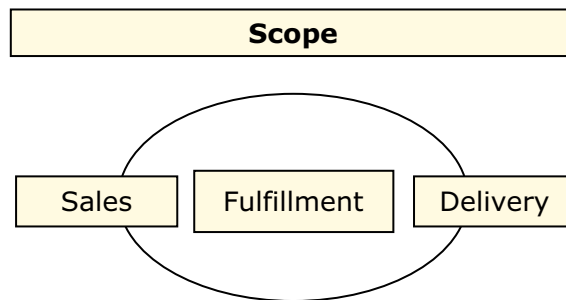
Figure 11-12. Define context and purpose of the process model

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Notes:

Define the project boundaries

- Specify those business processes that are included within the project
- Specify those business processes not included in the project
- Document the processes to be included in the scope in both text and graphic formats
 - Graphical
 - Draw a picture indicating those processes included and not included
 - Text
 - Write a short narrative describing those processes included and not included
- It needs to be clear to everyone



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Figure 11-13. Define the project boundaries

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Notes:

Clearly document and communicate the scope

- Minimize individual or personal interpretations of the project.
- Gain commitments to a common vision for the project.
- Use the project charter and scope to do continuous evaluation of the project performance.
 - Review project documentation for business process issues.
 - Conduct additional interviews to clarify process-related issues.
 - Determine if the key issues are included within the processes in scope.
 - Change the scope if necessary or change outcome expectations.

Project charter

Business purpose

Improve, redesign, and automate

Process scope

Define what is in and what is out

Goals of the modeling effort

Define the purpose of the model

Project organization

Sponsor, project manager, members, and time commitment

Key contacts

Subject matter experts

Project plan and schedule

Glossary of key terms

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Figure 11-14. Clearly document and communicate the scope

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Notes:

Identifying stakeholders

- Project approach is crucial to identifying the appropriate stakeholders and keeping them involved,
 - Healthy signs:
 - Executive incentives tied to project results
 - Investments in change management and training
 - Subject matter experts dedicated full-time
 - Unhealthy signs:
 - No executive sponsor visible
 - People sabotaging efforts
 - Resistance to new ideas
 - Subject matter experts are unavailable

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Figure 11-15. Identifying stakeholders

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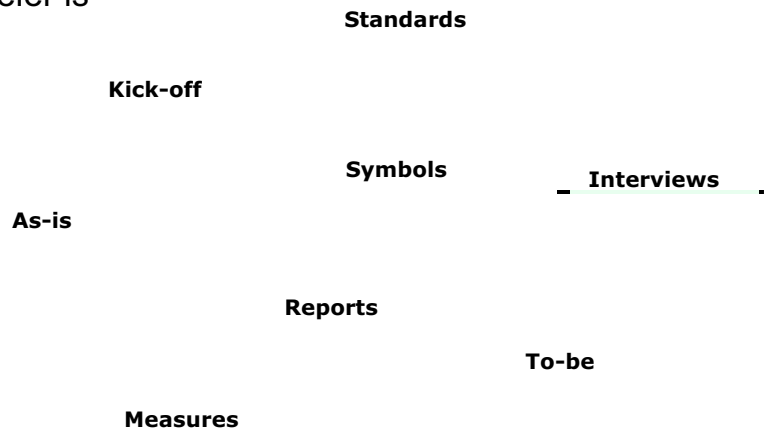
Notes:

Involved stakeholders are critical in identifying and approving business measures, reporting, and change control.

- Review the high-level business goals.
- Review or define the necessary business measures to determine goal achievement.
- Identify the measurement data available and what needs be gathered.
- Define the new targets required by the business goals.

Defining standards and agreeing to best practices

- Your stakeholders will also help you define the standards and gain the agreement required to maintain best practices:
 - WebSphere Business Modeler is methodology independent, but successful modeling efforts require a level of standardization and a defined approach.
 - Process modeling standards:
 - It is necessary to define the use, creation, and implementation of the symbols, definitions, and data descriptions.



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Figure 11-16. Defining standards and agreeing to best practices

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Notes:

Process modeling standards (1 of 4)

- Agreement to a set of standards is critical to developing a set of process models that are compatible and aligned with each other and in determining:
 - The naming of objects (tasks, processes, roles, and so forth)
 - The details to be gathered and documented
- Process models should follow defined standards understood by all participants.
 - The model is a language that describes the way the organization operates.

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Figure 11-17. Process modeling standards (1 of 4)

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Notes:

Process modeling standards (2 of 4)

Subject	Recommendation	Examples
Organization units	<ul style="list-style-type: none"> Use names that appear on the organization charts. The actual units used will be determined by the level of detail to be modeled. 	Quality (team) Engineering (department) Plastics (division)
Locations	<ul style="list-style-type: none"> Use names that the organization uses to describe where people perform their work. 	New York Building 2
Roles	<ul style="list-style-type: none"> Use names assigned to the position in organization. Avoid specific job titles, as they tend to change. General roles can be used in several organization units without entering additional data. Cost is the biggest differentiator, obtained from HR. Serves as the position's general overhead cost. 	Teller Welder Administrative assistant Senior analyst Director of engineering
Resources	<ul style="list-style-type: none"> Other resources, such as tools, equipment, consumables, or services can be documented in the process model along with human resources. Add resources that will add value to the overall analysis. <ul style="list-style-type: none"> Name and describe early in the modeling exercise. Make sure everyone is modeling at the same level. 	Name or ID number Copier CNC Paint booth Title search

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Figure 11-18. Process modeling standards (2 of 4)

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Notes:

Process modeling standards (3 of 4)

Subject	Recommendation	Examples
Processes	<ul style="list-style-type: none"> Follow the <i>verb object</i> format. <ul style="list-style-type: none"> Should represent the collection of tasks within it. Some objects need further definition because alone they could mean several things. <ul style="list-style-type: none"> The object "order" is a prime example: customer order, work order, sales order, delivery order. 	<ul style="list-style-type: none"> Not as good <ul style="list-style-type: none"> Ordering Good <ul style="list-style-type: none"> Fill customer orders Assemble products Assembly
Tasks	<ul style="list-style-type: none"> Tasks should follow the <i>verb object</i> format and describe the work being performed. Be concise because in a given organizations there will be several task names. The available verbs can also be standardized to support a common language. Avoid verbs like <i>review</i> because they are unclear and add no value. 	<ul style="list-style-type: none"> Good <ul style="list-style-type: none"> Cut material Sort invoices Not as good <ul style="list-style-type: none"> Repairing Review order (what does it mean?)
Decisions	<ul style="list-style-type: none"> Decisions and choices should reflect the path being followed because of an actual decision. Multiple decisions typically result in smaller diagrams that are easier to read. The name should be stated as a question with a question mark. Binary decisions (yes or no) work well for simple decisions. 	<ul style="list-style-type: none"> Loan status? <ul style="list-style-type: none"> Loan approved Loan rejected Risk rating? <ul style="list-style-type: none"> High Medium Low

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Figure 11-19. Process modeling standards (3 of 4)

WB284 / VB2841.0

Notes:

Process modeling standards (4 of 4)

Subject	Recommendation	Examples
Services	<ul style="list-style-type: none"> • Use names that describe the work being performed outside the organization. • A service is a process or task performed by someone outside the scope. 	<ul style="list-style-type: none"> • Process payroll checks • Print books • Distribute supplies
Business items	<ul style="list-style-type: none"> • The business items names identify the specific inputs and outputs important to the process and need unique names. • Some business items include a set of other business items, like a work packet. 	<ul style="list-style-type: none"> • Customer order • Work packet • Rental agreement • Desk • Power supply

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Figure 11-20. Process modeling standards (4 of 4)

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Notes:

Modeling project considerations

- Modeling team composition
 - To model the business processes effectively, a modeling team needs a diverse set of skills and roles. A team member can fill more than one role, and more than one person can fill a role.
- Conventions for modeling teams
 - Modeling teams should establish conventions to help make the model consistent throughout and to help with interaction between the team members.
- Setting up modeling projects
 - One of the tasks for the architect is to define the structure or organization of the projects. There are several ways to accomplish this.
- Consider master and component projects
 - You can model using multiple projects while sharing common information. The overall structure may be a master project that contains common elements and a manageable set of component projects that each model a specific aspect of the business.
- One large project versus multiple projects

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Figure 11-21. Modeling project considerations

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Notes:

One large project:

The architect creates its structure. If the modeling team is using project versioning to store the project, the architect should include at least one file in each folder. This file can be a dummy file that the team deletes after it places a real file in the folder. If the folder does not include at least one file, the folder cannot be retrieved from the repository.

Multiple projects:

The architect can create a project template to provide a common structure for the projects. If the team is using a master project to contain common elements and a set of component projects to contain the various models, the architect can create the template for the project files.

Typical roles in a modeling team

- **Leader**
 - Coordinates the activities of the modeling team
 - Maintains the schedule and manages inter-personnel problems
 - Have experience in project management and in the modeling methodology
- **Architect or senior business analyst**
 - Defines the structure to use within WebSphere Business Modeler to store the model information
- **Process analyst or business analyst**
 - Gathers and enters information into the projects
 - Conducts activities such as interviewing subject matter experts and reviewing documentation
 - Should have some experience with using WebSphere Business Modeler
- **Administrator**
 - Uses WebSphere Business Modeler Publishing Server to publish projects to a publishing server
 - Uses version control tool to manage the project versioning

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Figure 11-22. Typical roles in a modeling team

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Notes:

To model the business processes effectively, a modeling team needs a diverse set of skills and roles.

A team member can fill more than one role, and more than one person can fill a role.

Ways to identify business processes

- Start with a predefined model and align the business to the model.
 - APQC (American Productivity and Quality Center) provides a Process Classification Framework that is a good starting point for all product and service companies.
 - Porter Value Chain: Michael Porter introduced a generic value chain model that comprises a sequence of activities found to be common to a wide range of firms in his book, “Competitive Advantage” (1985)
 - Industry associations provide industry specific models
- Build a Functional Decomposition Diagram of the current business.
 - The functional decomposition diagram (FDD) is a business planning tool that depicts the hierarchy of business functions, processes, and subprocesses within an organization
 - The exercise of breaking down, or decomposing, the business functions into processes makes complex systems much easier to understand and analyze

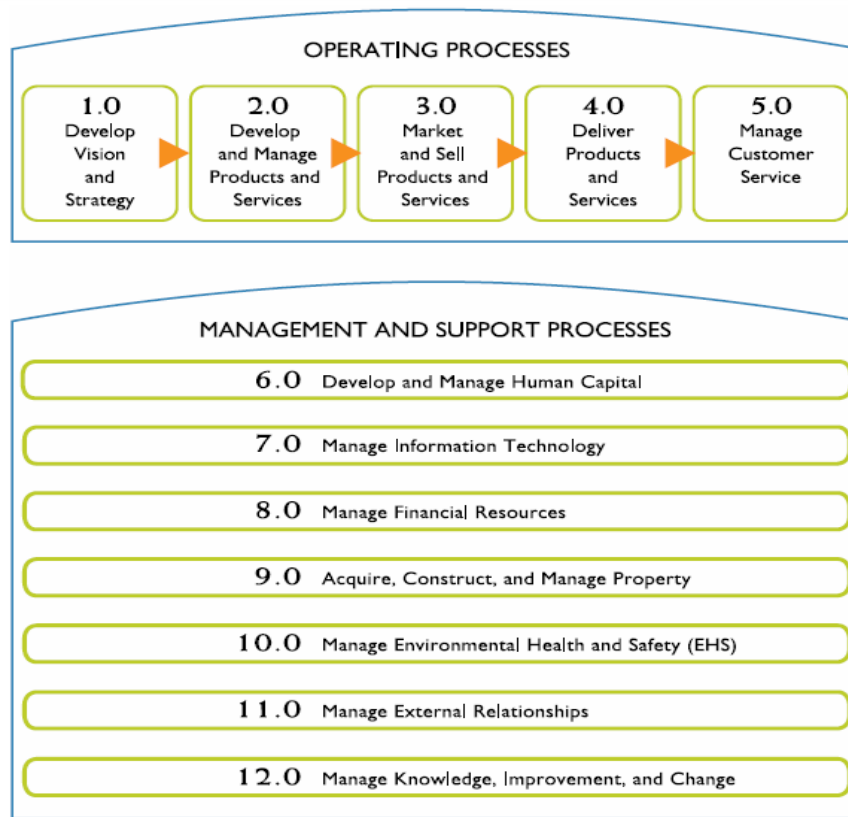
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Figure 11-23. Ways to identify business processes

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Notes:

APQC Process Classification Framework



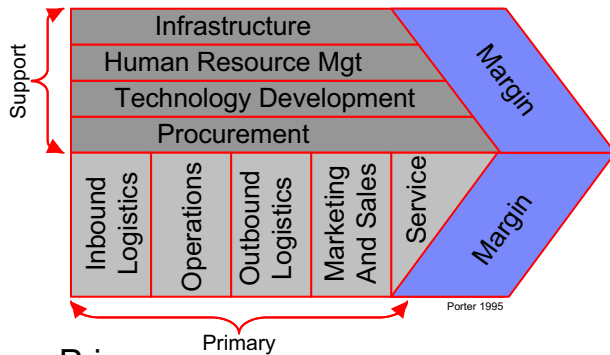
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Figure 11-24. APQC Process Classification Framework

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Notes:

Porter Value Chain



The goal of these activities is to offer the customer a level of value that exceeds the cost of the activities, thereby resulting in a profit margin.

• Primary

- Inbound Logistics: the receiving and warehousing of raw materials, and their distribution to manufacturing as they are required.
- Operations: the processes of transforming inputs into finished products and services.
- Outbound Logistics: the warehousing and distribution of finished goods.
- Marketing and Sales: the identification of customer needs and the generation of sales.
- Service: the support of customers after the products and services are sold to them.

• Support

- The infrastructure of the firm: organizational structure, control systems, company culture, etc.
- Human resource management: employee recruiting, hiring, training, development, and compensation.
- Technology development: technologies to support value-creating activities.
- Procurement: purchasing inputs such as materials, supplies, and equipment.

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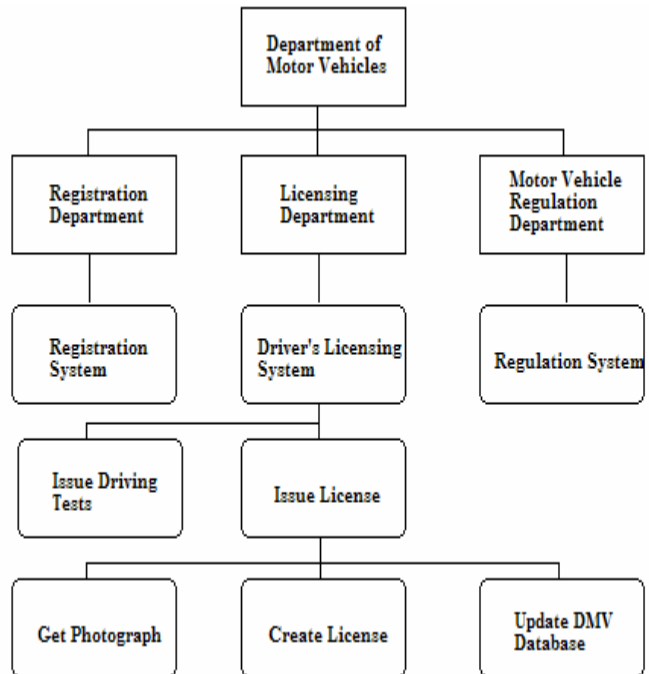
Figure 11-25. Porter Value Chain

WB284 / VB2841.0

Notes:

Functional decomposition diagram

- Business functions are important processes that occur throughout the organization's value chain which is the series of interdependent activities that bring a product or service to the customer
 - For example, value chain activities may include inbound logistics, operations, marketing and sales, and order fulfillment.
- The functional decomposition diagram itself does not depict process flows, but rather the hierarchical organization of functions and the processes that they include.
- There is no particular order implied by the boxes.



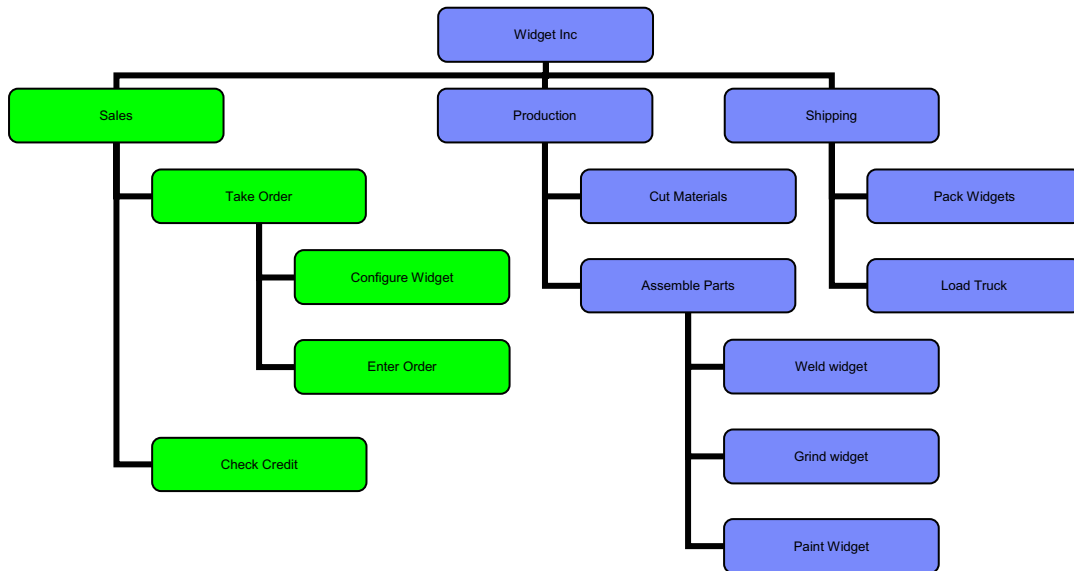
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Figure 11-26. Functional decomposition diagram

WB284 / VB2841.0

Notes:

Functional decomposition focuses on a logical area of the business



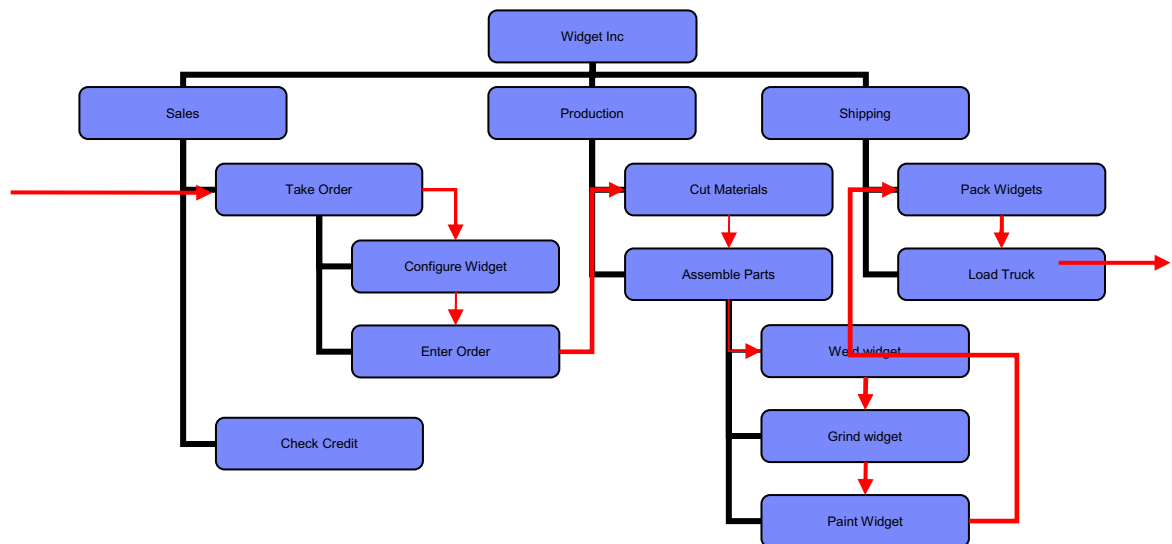
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Figure 11-27. Functional decomposition focuses on a logical area of the business

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Notes:

Cross functional flows focus on the sequence of work through the functional areas.



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Figure 11-28. Cross functional flows focus on the sequence of work through the functional areas.

WB284 / VB2841.0

Notes:

Benefits of decomposition

- Effectively represents the non-interacting business process components
 - Separates the business functions into their lowest logical units of work providing a clearer understanding of how the business operates
 - Supports SOA efforts by identifying reusable subprocesses and potential business services the need to be developed or purchased.
- Aids in the identification of the most important processes metrics
 - Shows the relationship between the primary process variables and underlying variables that have a significant effect on the overall process outcome.
 - Establishes a structure for designing business measures and KPIs
- Provides a nomenclature the represents the actual structure of the business processes
 - The nomenclature is also used to set the context of the business processes by providing insight into the work being performed and the behavior in relation to each other.
 - Aids in the definition of the scope of projects related to business processes
- Offers insight from both the top-down or the bottom-up
 - The top-down view looks at the process as a whole or as a system
 - The bottom-up view looks at the process as a set of basic elements
 - Reduces the chance of forgetting activities critical to the execution of the process
- Provides a means to characterize hierarchy versus modularity
 - Hierarchy shows the break-down and modularity shows the interaction

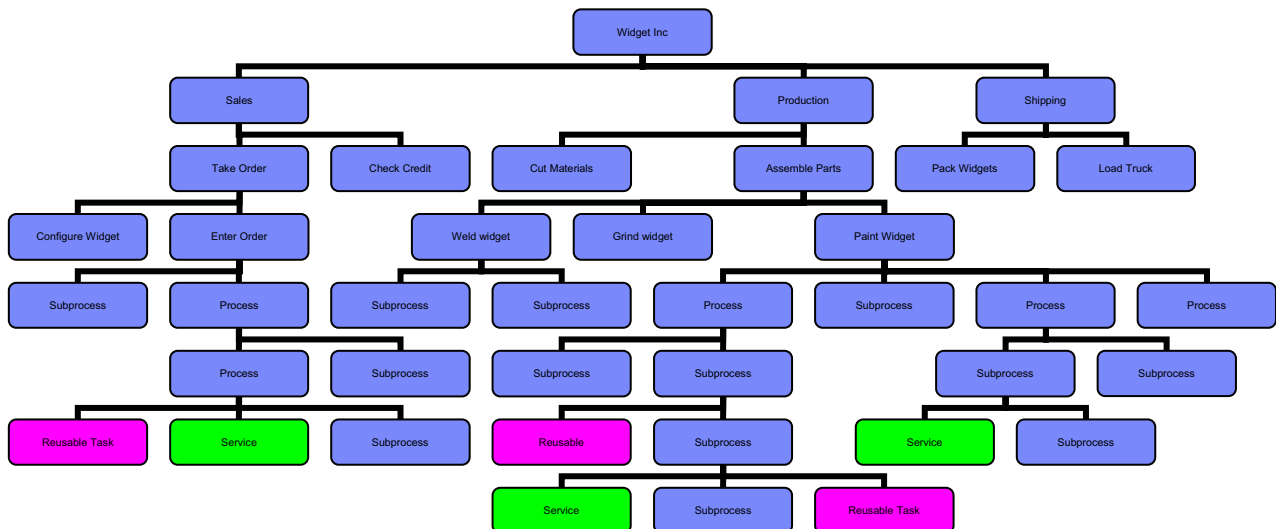
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Figure 11-29. Benefits of decomposition

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Notes:

Functional decomposition supports the identification of business services and reusable activities.

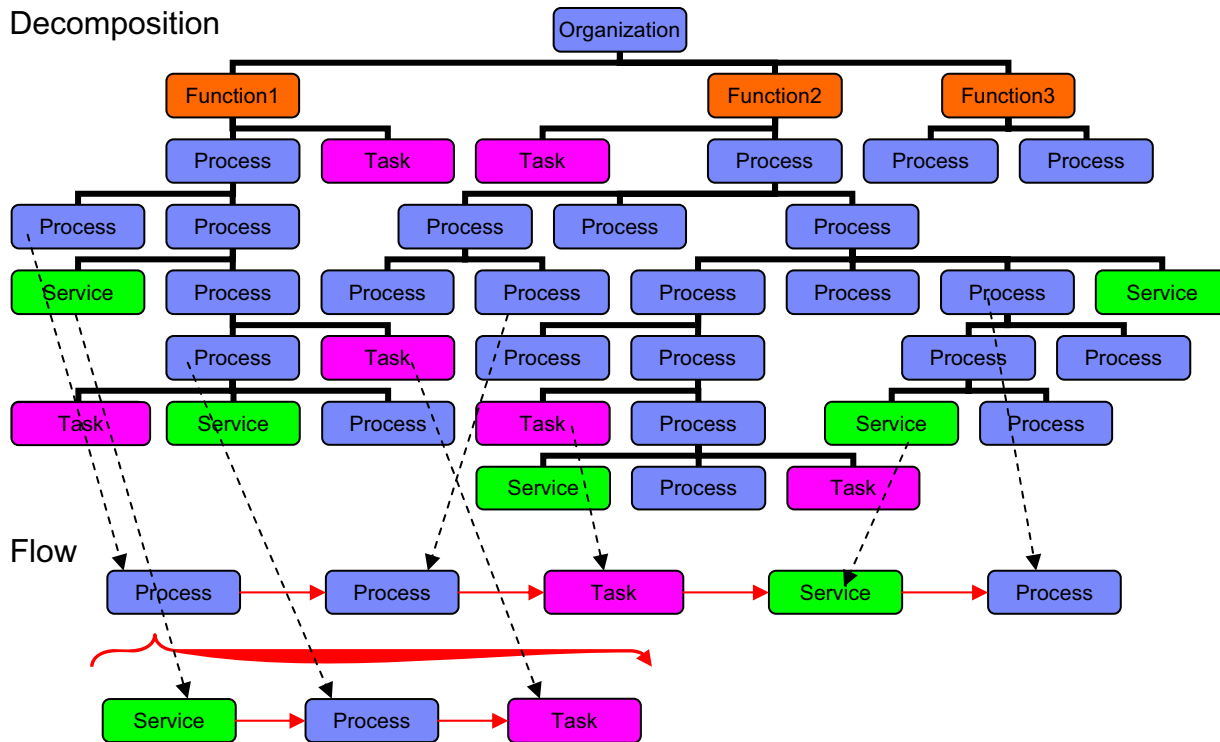


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Figure 11-30. Functional Decomposition supports the identification of business services and reusable activities. WB284 / VB2841.0

Notes:

The decomposed elements of work; processes, reusable tasks and services are used to define the process flow.



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Figure 11-31. The decomposed elements of work; processes, reusable tasks and services are used to define the process flow. WB284 / VB2841.0

Notes:

Six Sigma is a methodology for process improvement

- Six Sigma has been built as a critical business tool for the 21st century
- Leading companies, such as, Motorola, General Electric, and Honeywell International, launched major Six Sigma initiatives
- What is Six Sigma?
 - A measure of quality that strives for near perfection
 - A disciplined, data-driven approach and methodology for eliminating defects in any process
 - Drives towards six standard deviations between the mean and the nearest specification limit
 - Applicable from manufacturing to transactional and from product to service
 - A statistical representation of Six Sigma describes quantitatively how a process is performing

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Figure 11-32. Six Sigma a methodology for process improvement

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Notes:

Six Sigma objectives

- Implementation of a measurement-based strategy that focuses on process improvement and variation reduction through the application of Six Sigma improvement projects
- Two of the Six Sigma sub-methodologies are DMAIC and DMADV:
 - DMAIC (define, measure, analyze, improve, control) is an improvement system for existing processes falling below specification and looking for incremental improvement
 - DMADV process (define, measure, analyze, design, verify) is an improvement system used to develop new processes or products

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Figure 11-33. Six Sigma objectives

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Notes:

Six Sigma process steps: DMAIC

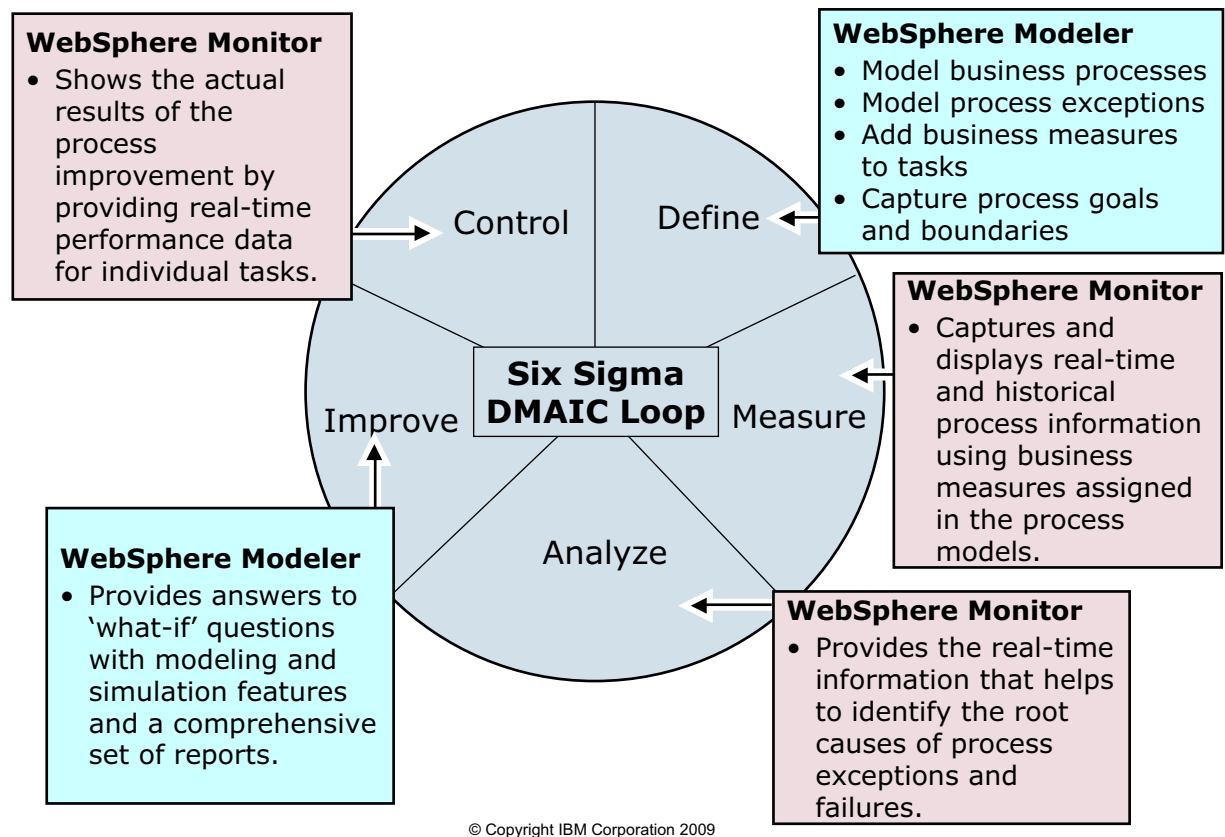


Figure 11-34. Six Sigma process steps: DMAIC

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Notes:

Exception pattern methodology

- A business transaction is the performance of a unit of work by a process, task, or activity in response to an internal or external input
- An exception is any business transaction that deviates from a desired process path
 - Input errors or omissions
 - Product or service irregularities
- A failure is any business transaction that results in an unacceptable exception or output due to a process error
- Modeling exceptions as discrete paths providing clarity and enabling independent analysis
- Capturing detailed exception information for diagnosis
- A Methodology for Representing Exceptions in a process diagram
 - Model the Macro Flow
 - Review the process model for exceptions
 - Change exception tasks to sub-processes
 - Model exception paths
 - Create possible causes of exceptions
 - Associate classifiers to the exceptions
 - Analyze the exceptions

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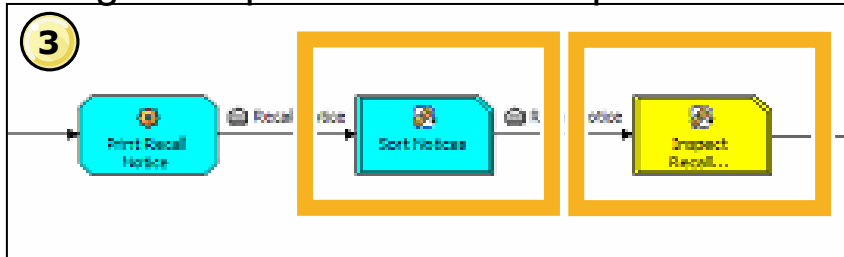
Figure 11-35. Exception pattern methodology

WB284 / VB2841.0

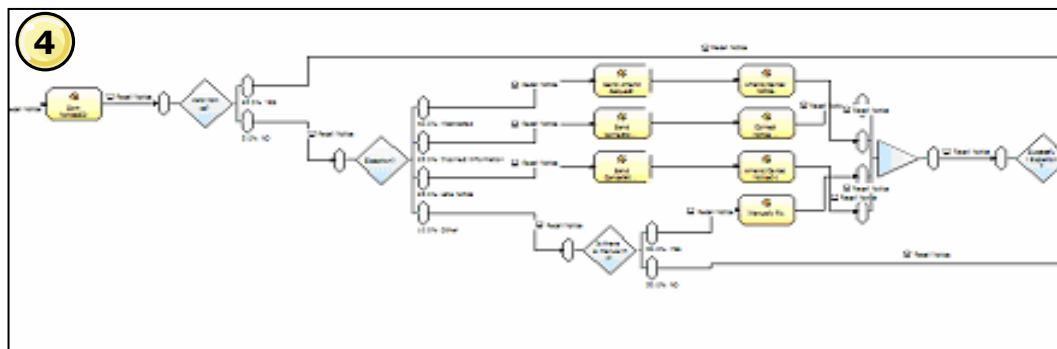
Notes:

Six sigma modeling using Modeler (2 of 4)

- Change exception tasks to sub-processes



- Model the exception paths for detailed analysis



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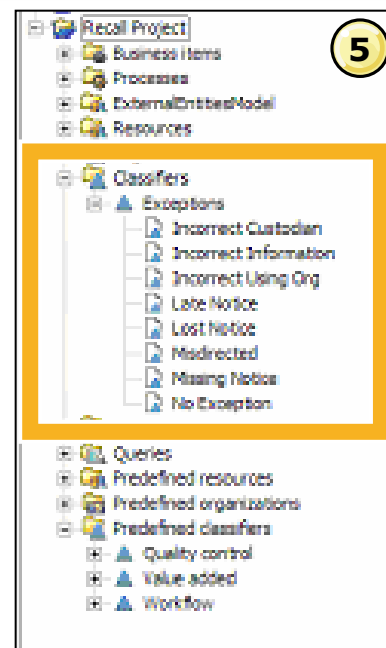
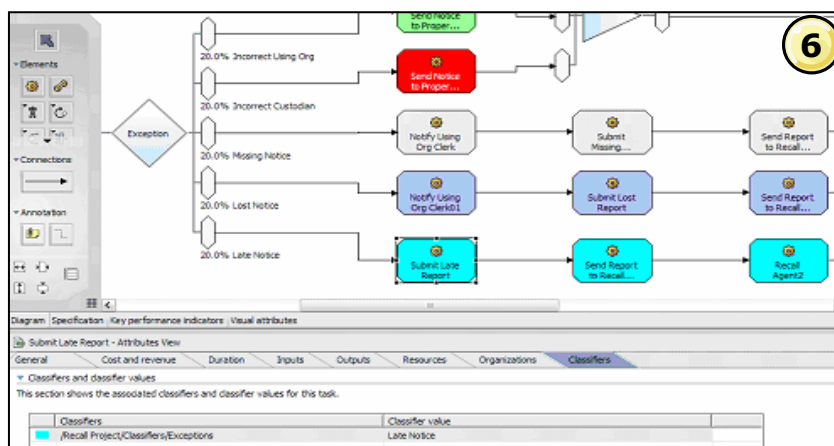
Figure 11-37. Six sigma modeling using Modeler (2 of 4)

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Notes:

Six sigma modeling using Modeler (3 of 4)

- Create possible causes of exceptions as Classifiers



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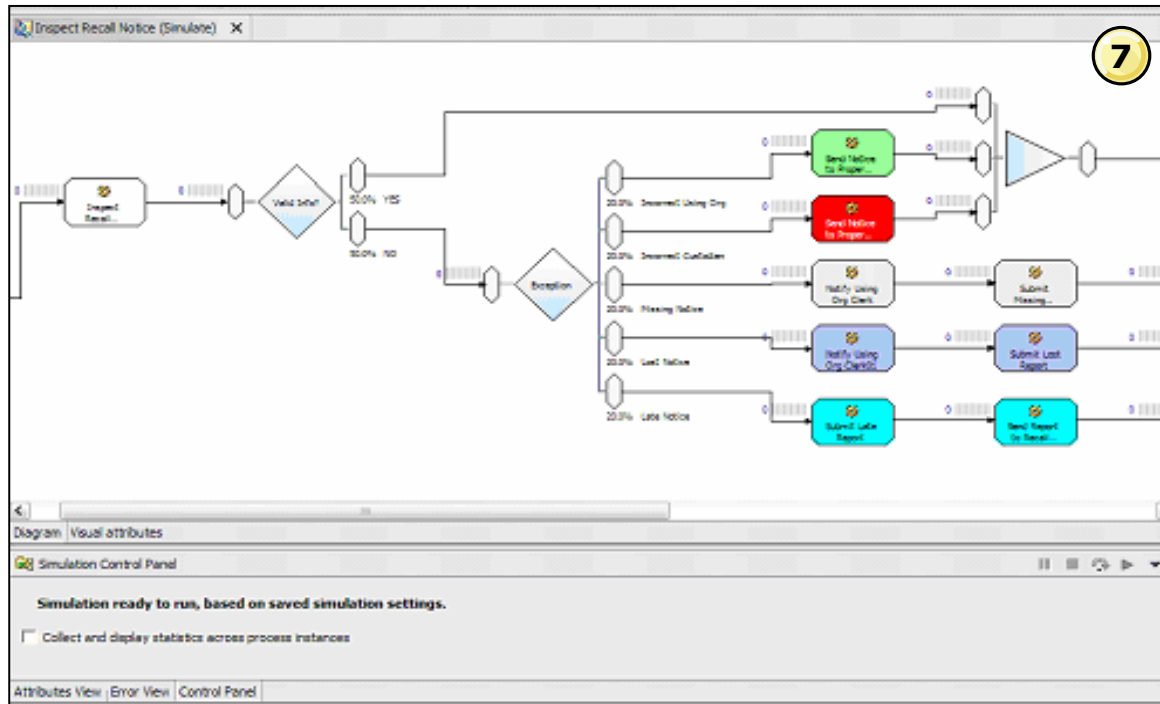
Figure 11-38. Six sigma modeling using Modeler (3 of 4)

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Notes:

Six sigma modeling using Modeler (4 of 4)

- Analyze the exceptions and plan corrective actions



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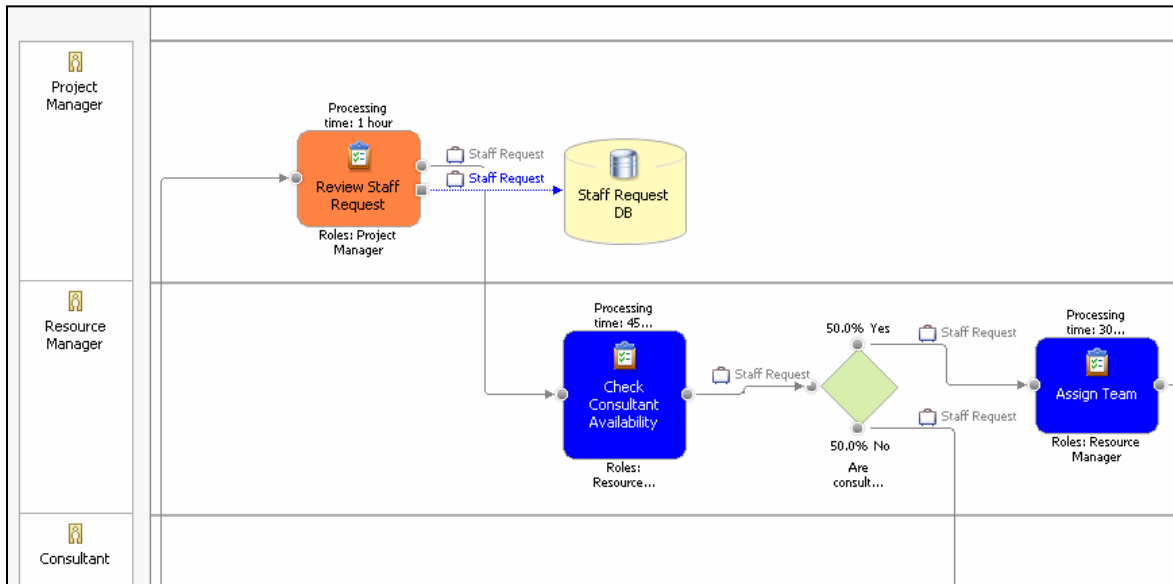
Figure 11-39. Six sigma modeling using Modeler (4 of 4)

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Notes:

Color by and analysis by classifiers in Modeler

- Color code the process diagram by classifier
- Use classifier values as the label on top or below the elements
- Swimlane view by classifier



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Figure 11-40. Color by and analysis by classifiers in Modeler

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Notes:

Modeler: Six Sigma process management tool

- Modeler is an effective and efficient Six Sigma process management tool
 - Gather information on exceptions and their causes
 - Optimize proposed changes through 'what-if' simulations
 - Show process-performance trends
 - Allow for continuous process improvement

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Figure 11-41. Modeler: Six Sigma process management tool

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Notes:

Checkpoint

1. What needs to be defined in the process modeling standards?

2. What are the typical roles in a modeling team?

3. Name two of the Six Sigma sub-methodologies.

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Figure 11-42. Checkpoint

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Notes:

Write your answers here:

- 1.
- 2.
- 3.

Unit summary

Having completed this unit, you should be able to:

- Describe process analysis methodology and scoping
- Explain the importance of process modeling standards
- Define a project organization
- Describe team dynamics
- Explain the concept of loop-back for continuous improvement
- Explain how Modeler supports Six Sigma

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Figure 11-43. Unit summary

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Notes:

Checkpoint solution

1. What needs to be defined in the process modeling standards?
It is necessary to define the use, creation, and implementation of the symbols, definitions, and data descriptions.
2. What are the typical roles in a modeling team?
Leader, Architect or senior business analyst, Process analyst or business analyst and Administrator
3. Name two of the Six Sigma sub-methodologies.
DMAIC (define, measure, analyze, improve, control) is an improvement system for existing processes falling below specification and looking for incremental improvement. DMADV process (define, measure, analyze, design, verify) is an improvement system used to develop new processes or products

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Figure 11-44. Checkpoint solution

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Notes:

Exercise overview

- This exercise covers a case study; an interactive group discussion of the modeling techniques and an alternate solution will follow.
- You are presented with a case study as a business analyst assigned to a business process management project.
 - Read the case and the information about the company and its expenses reporting process.
 - Based on the information provided, use Modeler to create a project, the business items, and the process diagram.
- Translate “What they said” into a meaningful model.

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Figure 11-45. Exercise overview

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Notes:

Unit 12. Collaboration support for version control

What this unit is about

This unit describes the collaboration support for version control.

What you should be able to do

After completing this unit, you should be able to:

- Explain the need for project versioning
- Describe Concurrent Versions System (CVS)
- Describe IBM Rational ClearCase
- Describe the steps involved in project versioning
- Explain the importance of version control
- Describe development using project versioning
- Explain best practices and deletion strategies

How you will check your progress

- Checkpoint
- Lab exercises

References

None

Unit objectives

After completing this unit, you should be able to:

- Explain the need for project versioning
- Describe Concurrent Versions System (CVS)
- Describe IBM Rational ClearCase
- Describe the steps involved in project versioning
- Explain the importance of version control
- Describe development using project versioning
- Explain best practices and deletion strategies

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Figure 12-1. Unit objectives

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Notes:

Model versions are maintained by another product

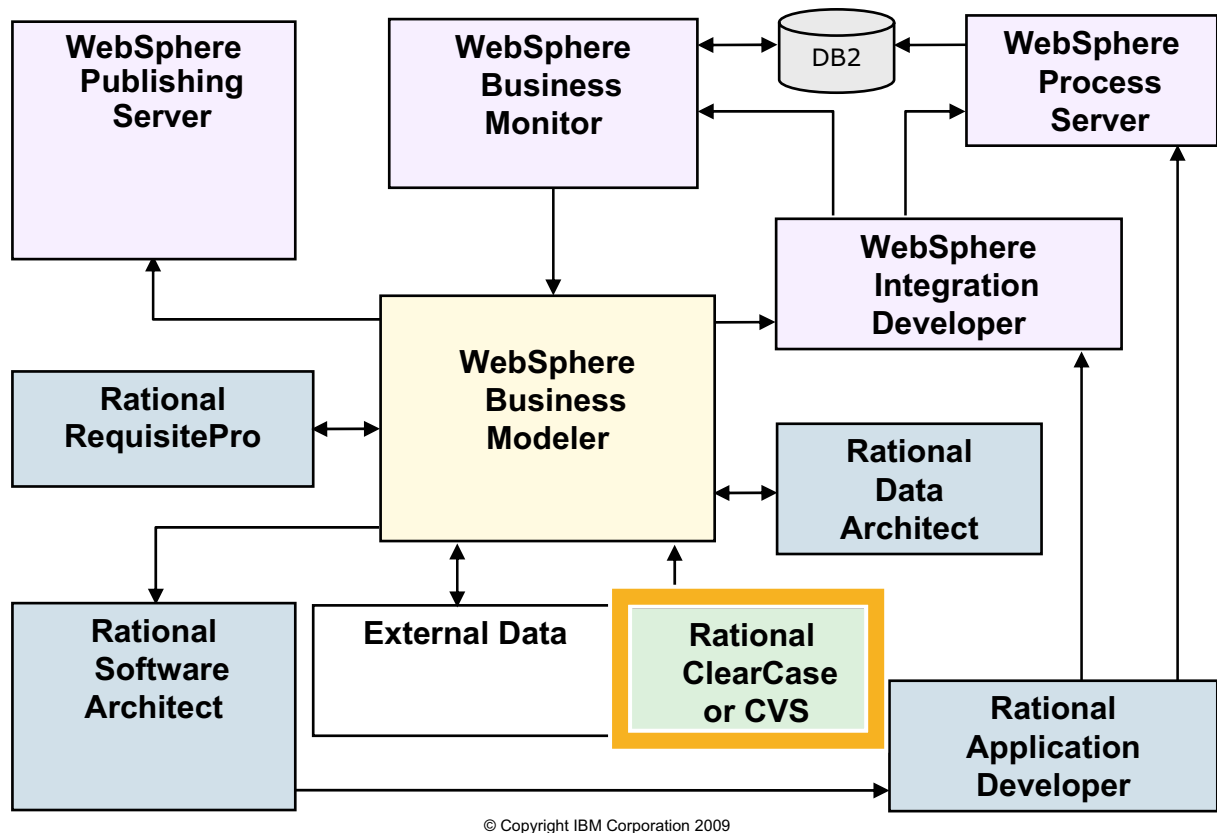
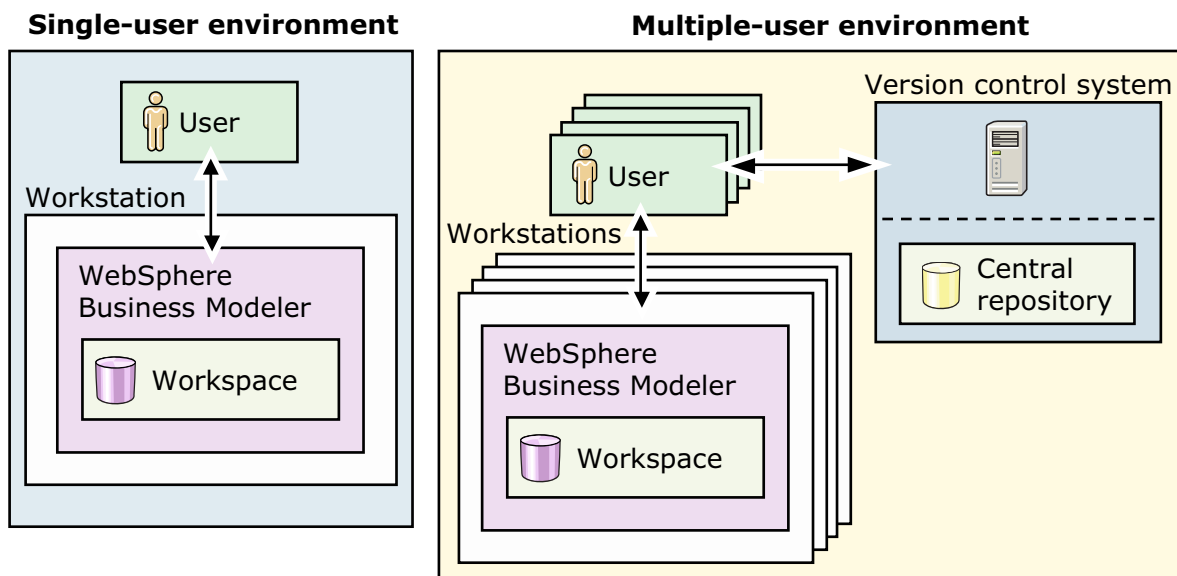


Figure 12-2. Model versions are maintained by another product

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Notes:

Environments for modeling



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Figure 12-3. Environments for modeling

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Notes:

The **single-user environment** is the basic environment for authoring a model. In this environment, a single user at a time builds, stores, validates, and analyzes the model. The single user environment is ideal for small scale projects in which parallel (or concurrent) development of the model does not often occur.

The **multiple-user environment** supports larger projects with several users contributing to build the business process model.

Parallel development occurs when two or more users work on the model simultaneously. The danger with parallel development in the single user environment is that data loss may occur. For example, User A edits Process 1 to add Task 1, while User B edits Process 1 and adds Task 2. In this case, Process 1 will contain Task 1 or Task 2, depending on which user did the last save.

If more than one person needs to work on the model in the single user environment, they do so by exporting and importing model projects or individual model elements. For example, User A edits the model and then exports it. User B imports the model and then works on it. If the team is using importing and exporting models to share the project, the

team members must closely cooperate and coordinate to avoid overwriting each other's changes and causing data loss.

Need for project versioning

- To distribute the effort of modeling or modifying an entire project among multiple team members.
 - Members can view and post project artifacts to a version control system.
 - Check out processes and create their local versions.
 - Submit their changes back when done
- Modeler can use IBM ClearCase or Concurrent Versions System (CVS) to access a version control repository on a server.
 - Maintain secured version control of project data in the repository
 - Each modification of a project element (such as process, resource, or catalog) stored as a distinct version of the original item
 - Post business modeling projects to share, view, make copies of the shared projects, and save the copies to their local machine
 - View the history of project element modifications
 - Compare two or more versions of the same item

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Figure 12-4. Need for project versioning

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Notes:

Controlling elements as if they were in a vault

- A version control system securely manages all the elements in a model individually, not as one big document.

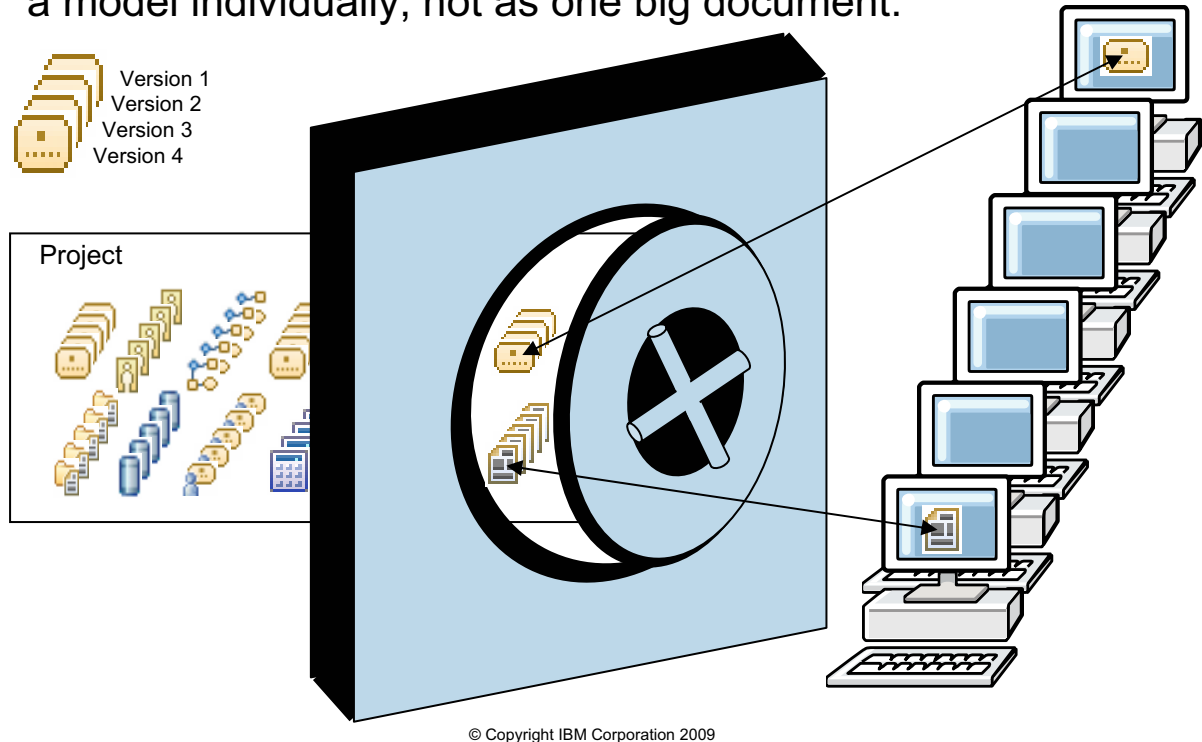


Figure 12-5. Controlling elements as if they were in a vault

WB284 / VB2841.0

Notes:

Concurrent Versions System (CVS)

- Open-source version control system primarily used for development
 - Keeps track of files and changes
 - Allows collaboration among developers in different geographic locations
 - Used to address code versioning issues
- Most commonly used code versioning and storage system today
- Common uses
 - Enable collaboration on medium to large projects distributed across geographies
 - Provide court evidence to demonstrate original work
 - Store source code version history

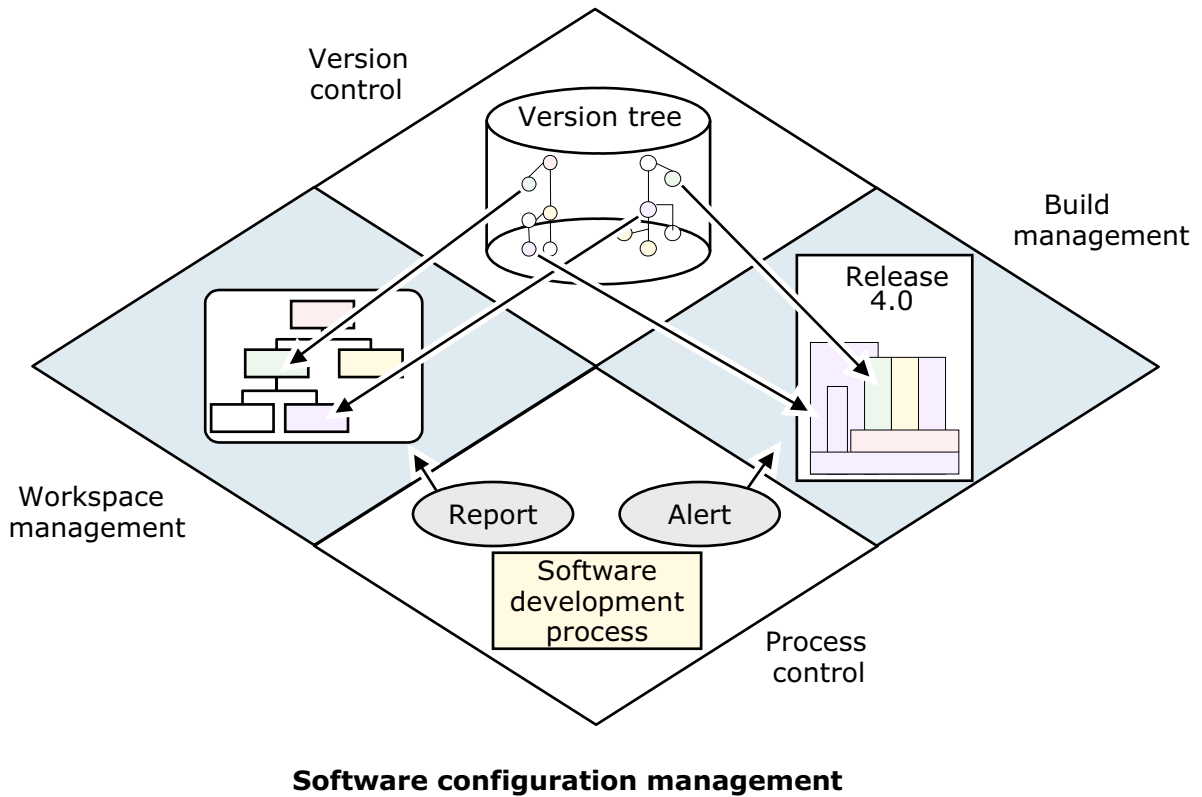
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Figure 12-6. Concurrent Versions System (CVS)

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Notes:

IBM Rational ClearCase (1 of 2)



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Figure 12-7. IBM Rational ClearCase (1 of 2)

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Notes:

IBM Rational ClearCase (2 of 2)

- The ClearCase design:
 - Creates versions of all types of files and directories
 - Records and reports the actions, history, and milestones
 - Reproduces accurately every release
 - Traces and reproduces builds
 - Assures the integrity of all software elements
- ClearCase is an integrated system, but it is useful to group its features into four functional groups:
 - Workspace management
 - Version control
 - Build management
 - Process control

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Figure 12-8. IBM Rational ClearCase (2 of 2)

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Notes:

Reasons for using versioning tools

- Efficient, reliable, and layered security
- Diversity of support for multiple platforms
- Central and distributed code
- Backup and multiple layers of saved changes
- Only differences are stored on server — not copies
- “Concurrent” access to the same file by multiple users
- Keeps track of items checked in and checked out
- Locks elements to prevent other team members from checking in versions (ClearCase only)

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Figure 12-9. Reasons for using versioning tools

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Notes:

Project sharing

- To share a local project:
 - Establish the connection to the version control system.
 - Create the structure to store the project's data.
- Once connected, send (commit) project data to the version control system.
 - Copy the committed data from the workspace on your local machine to the version control repository.
- Users do not have to commit all of the project's data (model elements).
- Local machine keeps all of the project data whether some or all of the data are committed.
- All authorized team members can access the committed data.
 - Check it out of the version control system using the project versioning component of WebSphere Business Modeler.

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Figure 12-10. Project sharing

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Notes:

Modeler version control terminology

- **Share** (connect) a project to a version control system
- **Disconnect** (stop sharing) from a version control system
- **Commit** (check in) project data to the repository first time
- **Check out** (copy to different local machine) to make changes
- **Update** to receive changes from the repository
- **Synchronize** to determine the differences between your local copy and the central repository

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Figure 12-11. Modeler version control terminology

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Notes:

Typical sharing sequence

User modeling action	User A	User B
A creates a model and connects to repository	Share	
A stores the model in the repository	Commit	
B wants to change the model, has to connect		Share
B copies model down to the workstation		Check out
B makes changes to the model		
B checks for conflicting changes		Synchronize
If no conflicting changes, B sends changes		Commit
A has been adding to the model		
A checks for conflicting changes	Synchronize	
If no conflicting changes, A sends changes	Commit	
A gets B's changes	Update	
B checks for A's changes		Synchronize
B gets A's changes		Update

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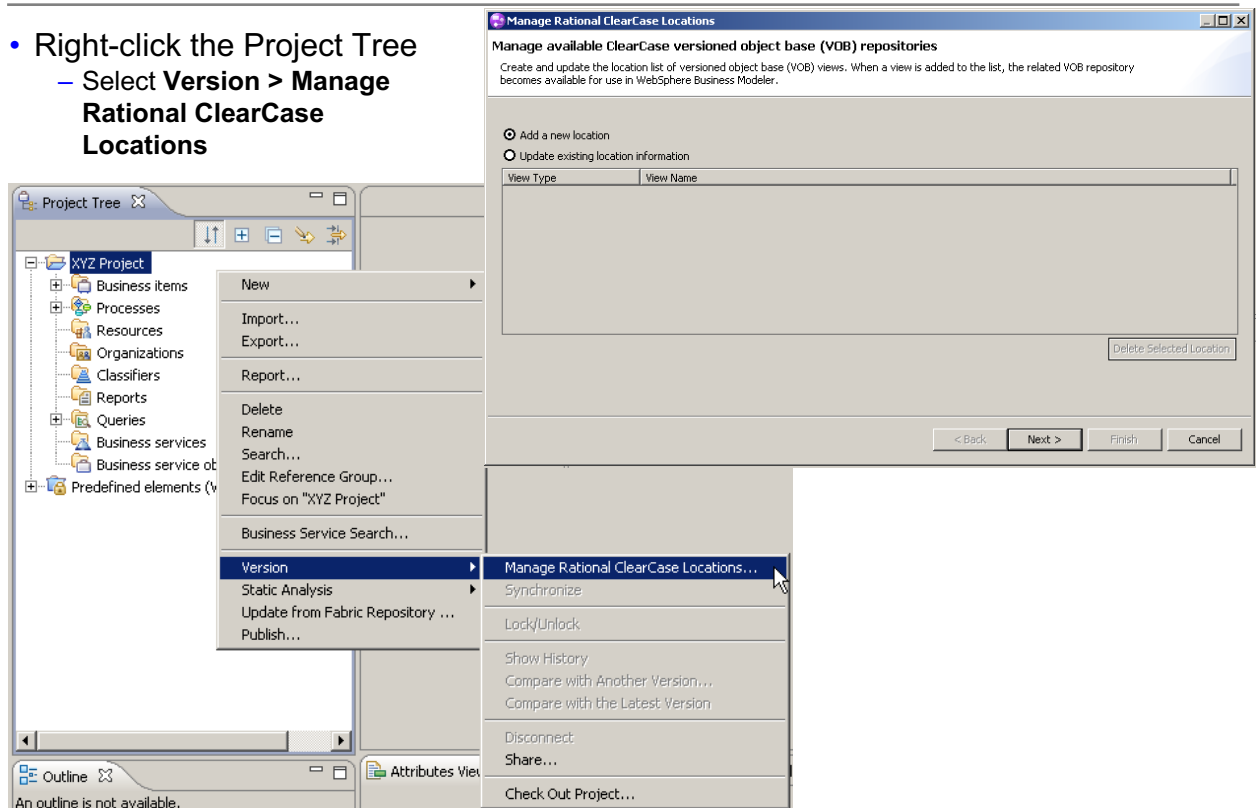
Figure 12-12. Typical sharing sequence

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Notes:

Adding a ClearCase repository

- Right-click the Project Tree
 - Select **Version > Manage Rational ClearCase Locations**



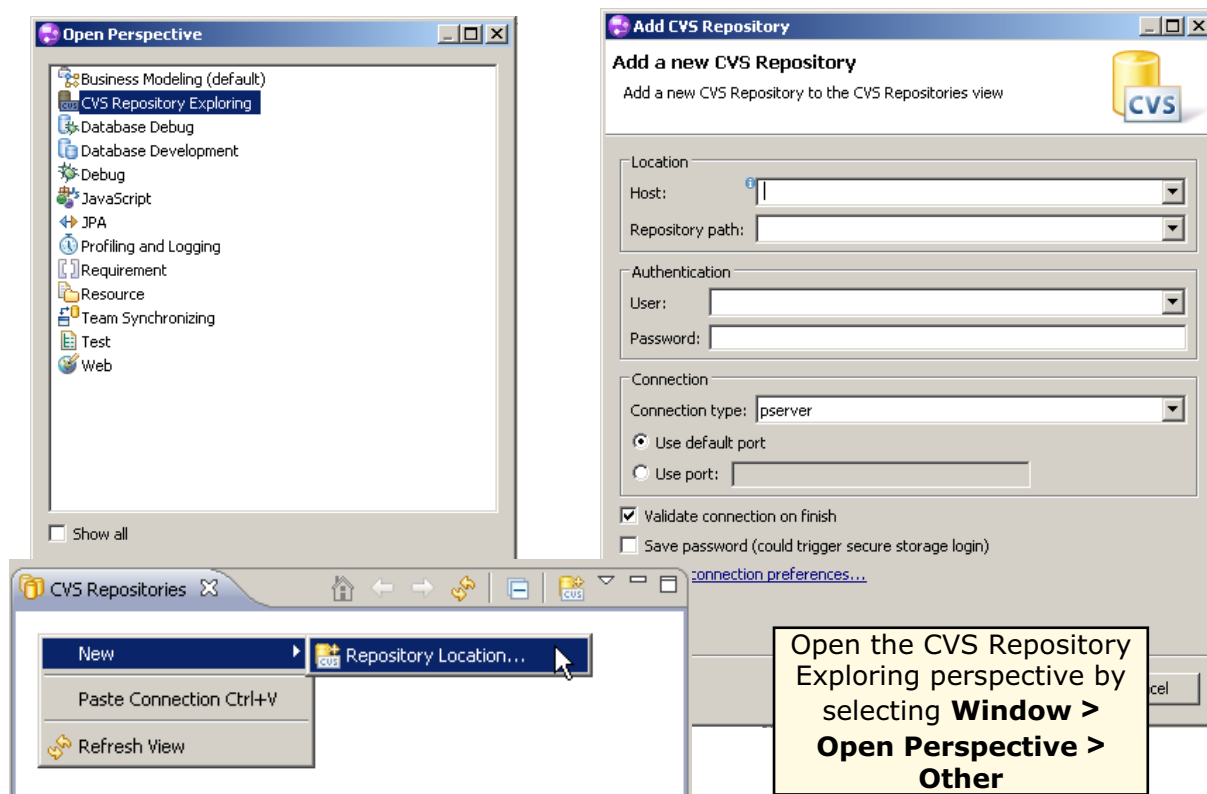
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Figure 12-13. Adding a ClearCase repository

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Notes:

Adding a CVS repository



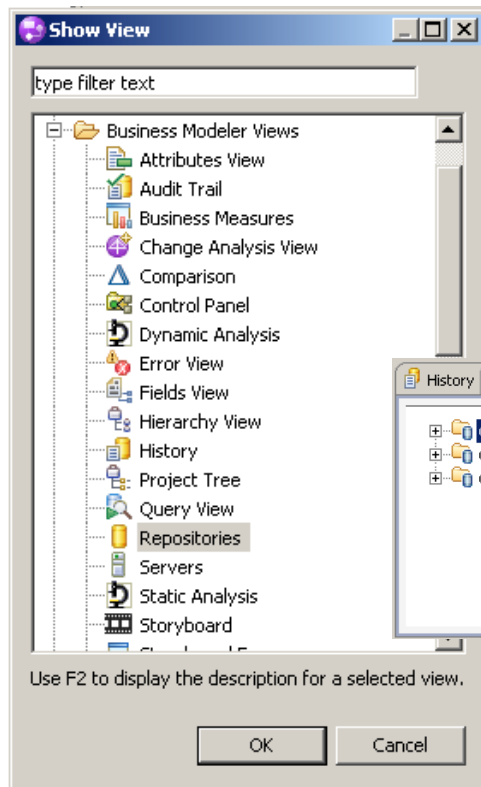
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Figure 12-14. Adding a CVS repository

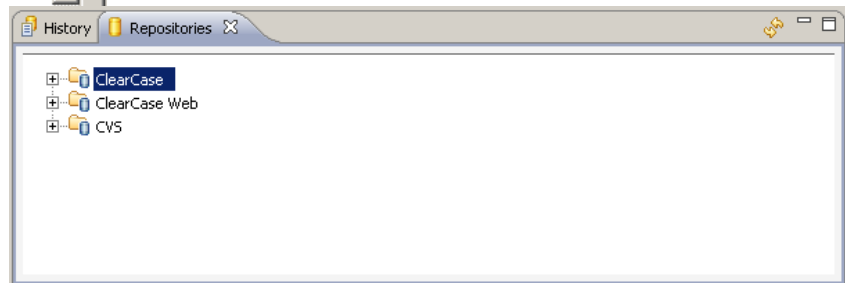
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Notes:

Repository view



- To view Repositories
 - Select **Window > Show View > Business Modeler Views > Repositories**



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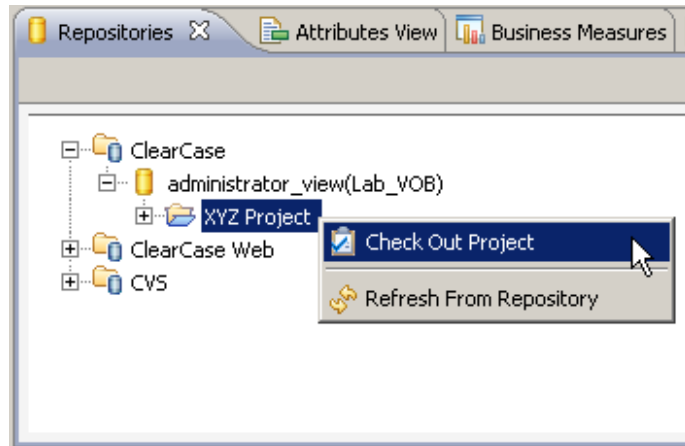
Figure 12-15. Repository view

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Notes:

Checking out a project

- From the **Repository view**
- Any registered repository server will be displayed in the view
- Right-click the desired project
- Select: **Check Out Project**
 - Cannot check out a project that already exists in the Modeler workspace



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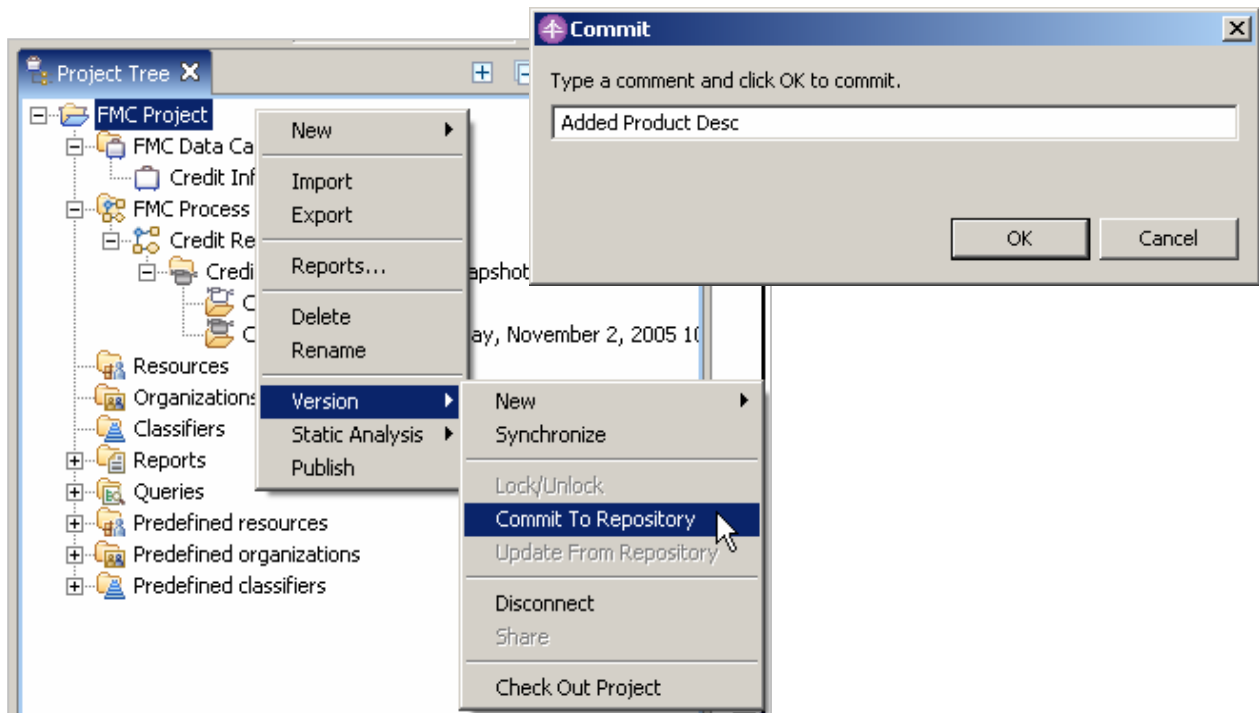
Figure 12-16. Checking out a project

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Notes:

Commit to repository

- Once the modification is made, commit changes back to the repository.



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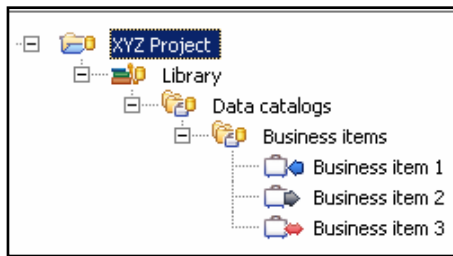
Figure 12-17. Commit to repository

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Notes:

Synchronize project data

- Synchronize view displays:
 - Elements that have changes to receive from the version control repository (incoming)
 - Elements that have changes to send to the version control repository (outgoing), or
 - Elements that have both incoming and outgoing changes



- Synchronize with one or more of the following options:
 - Commit To Repository
 - Update From Repository
 - Overwrite and Commit To Repository
 - Overwrite and Update From Repository

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Figure 12-18. Synchronize project data

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Notes:

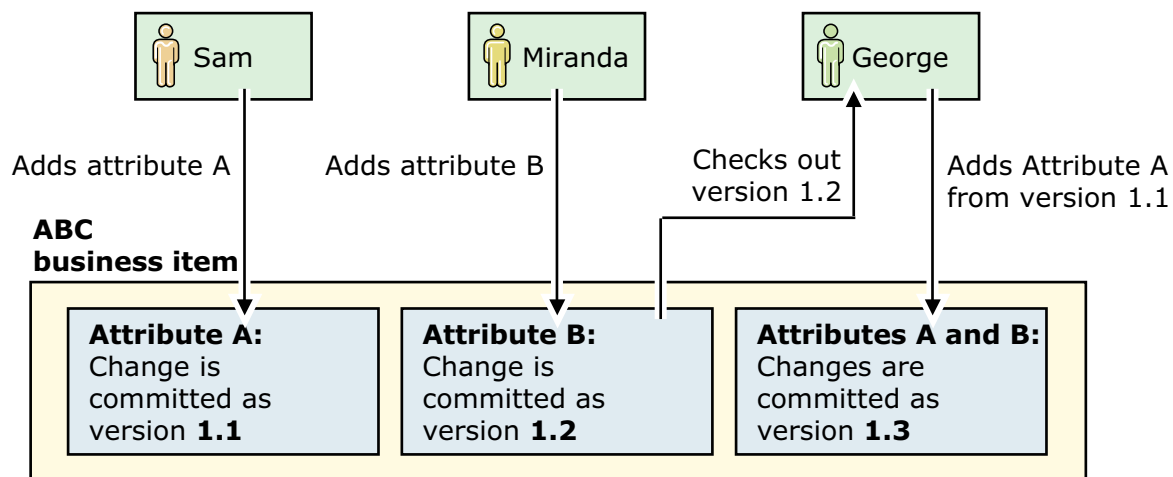
The **Commit To Repository** option displays when your local workspace contains the initial or most recent version of the element. The **Overwrite and Commit To Repository** option displays when the version in your local workspace is older than the latest version in the repository location and you made changes in your local version. If you choose this option, your version becomes the latest version in repository location; however, it does not contain the changes that occurred between your version and the version in the repository location. For example, you have version 1.2 of a project element and make an update to it. The version in the repository is 1.5. If you choose to Overwrite and Commit To Repository, you create version 1.6. All changes made in version 1.3, 1.4, and 1.5 do not appear in this version.

The **Update From Repository** option displays when your local workspace contains a lower version of the element than the repository location. The **Overwrite and Update From Repository** option displays when the version in your local workspace is older than the latest version in the repository location and you made changes in your local version. If you choose this option, the latest version in the repository location replaces the version in your local workspace. Any changes you have made to your local version are lost.

Note: When you synchronize a project containing an element someone else in the team has renamed, the element's old name appears in the Synchronize view as something you can send to the repository. When you update from the repository, the old name disappears from the Project Tree view and the new name appears. Project versioning does not send the change to the repository.'

Synchronization is important

- After the initial commit, model elements are kept synchronized
 - The same elements in both local and repository locations
- The repository increases the version number every time someone commits a change to the model element
- The workspace maintains the same version number until the user commits a change to the model element or updates it from the repository



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Figure 12-19. Synchronization is important

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Notes:

- In this example, Sam and Miranda both have checked out 1.0 independently.
- There is a copy on Sam's computer and a copy on Miranda's computer.
- When Sam adds Attribute A and commits, Miranda's copy is **not** updated.
- Similarly, Sam's copy is not updated when Miranda commits.
- However, as Miranda has committed after Sam, it is her version that is the most current in the repository.
- Sam's copy exists as an earlier version.
- George is reconciling the two different versions to create a third version.
- In the example, he is adding the Attribute A that exists in Sam's version to Miranda's version so that it has two attributes, A and B.

Resolving conflicts

- A conflict occurs when:
 - Changes to an older version of an element are made
 - Team members work on the same version of project data simultaneously
- Elements with incoming and outgoing changes may have a conflict
- Users must explicitly overwrite one of the versions to achieve synchronization
 - If the overwritten version contains information the current version needs, the user needs to reconcile the two versions.
 - A user should view the difference between current and the overwritten version.
 - The user then makes the appropriate changes to the current version and commits the changes as a new version.

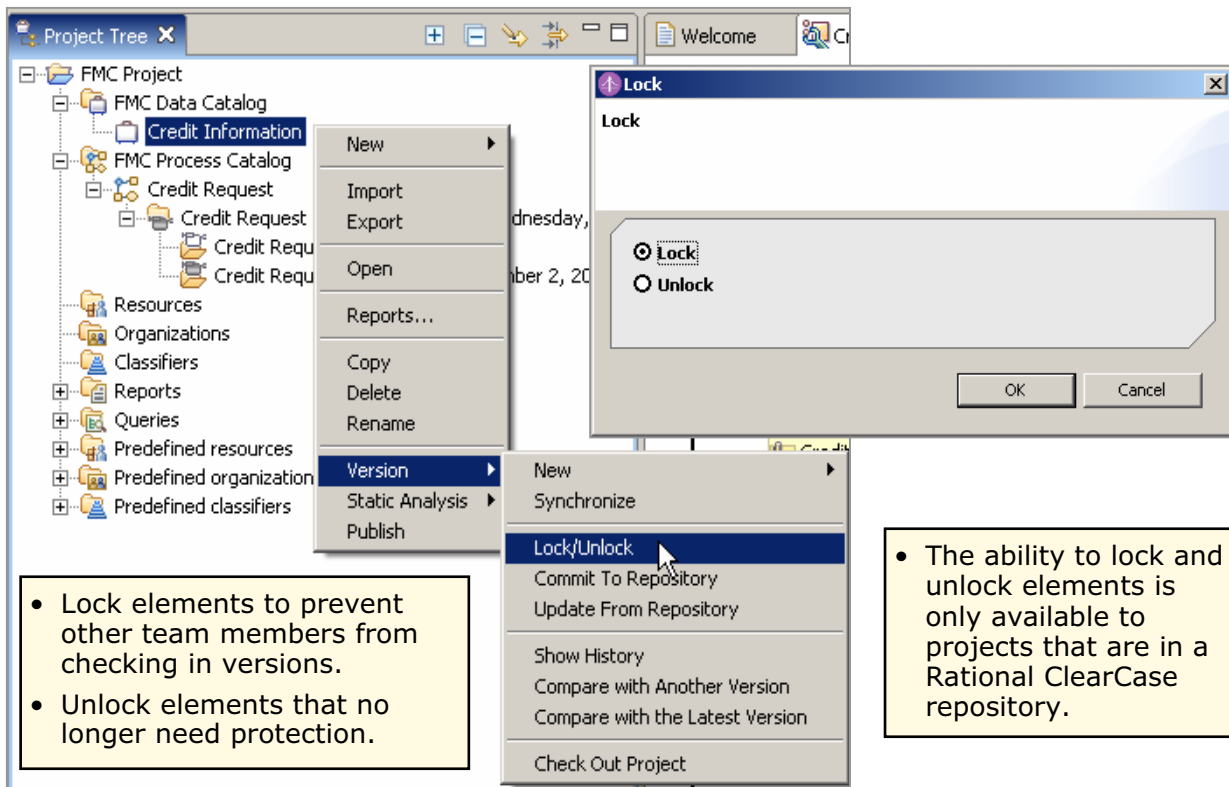
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Figure 12-20. Resolving conflicts

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Notes:

Locking and unlocking elements: ClearCase



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Figure 12-21. Locking and unlocking elements: ClearCase

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Notes:

Viewing the history of a component

- After modifications to a project are committed to a repository, a comparison can be made between the local workspace and the repository original
- Project versioning function can restore previous versions of components
 - A persistent undo function
- Can compare multiple versions
 - Right-click a component and select **Version > Show History**

Version	Author	Date	Comment
\main\3	Administrator	Saturday, January 24, 2009 3:17:12 AM EST	Added Price
\main\2	Administrator	Saturday, January 24, 2009 3:02:41 AM EST	Added Product Description
\main\1	Administrator	Saturday, January 24, 2009 2:58:37 AM EST	Initial Version

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Figure 12-22. Viewing the history of a component

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Notes:

The History view marks the version that you currently have loaded in your workspace with an asterisk (*).

Comparing versions

- **History view** displays all revisions of the component.
- Select two versions, and right-click for the context menu to compare.
 - If three or more versions are selected, Audit Trail becomes active.
 - If only one version is selected, the Get Content command is enabled.

Version	Author	Date	Comment	
\main\3	Administrator	Saturday, January 24, 2009 3:17:12 AM EST	Added Price	A context menu is displayed over the table, showing options: Load Content, Compare (highlighted), Audit Trail, Refresh, and Report... A mouse cursor is pointing at the 'Compare' option.
\main\2	Administrator	Saturday, January 24, 2009 3:02:41 AM EST	Added Product Description	
\main\1	Administrator	Saturday, January 24, 2009 2:58:37 AM EST	Initial Version	

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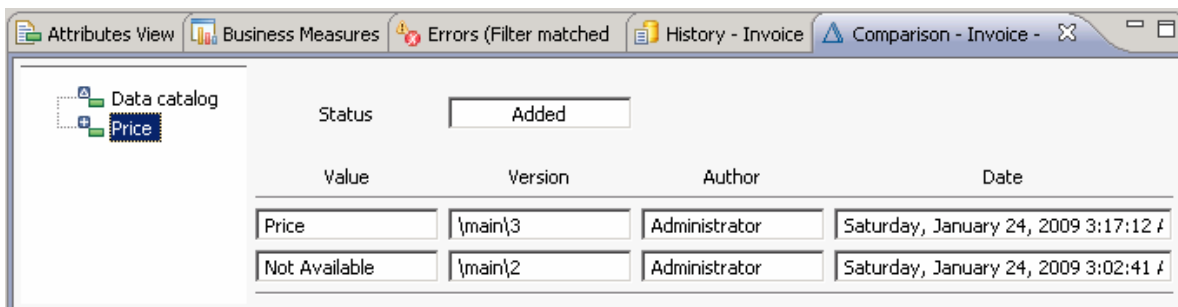
Figure 12-23. Comparing versions

WB284 / VB2841.0

Notes:

Comparison view

- The Comparison view will show the information of the two versions.
 - Date: date change took place
 - Author: user who made the change
 - Version: version number
 - Value: actual data for each version
 - Status: status of change (for example, Added or Updated)
- The value “Not Available” with “Added” status indicates that the “Product Description” was a new item that did not exist before.



Value	Version	Author	Date
Price	\main\3	Administrator	Saturday, January 24, 2009 3:17:12 /
Not Available	\main\2	Administrator	Saturday, January 24, 2009 3:02:41 /

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Figure 12-24. Comparison view

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Notes:

Audit trail

- To display additional details of versions in an audit trail:
 - In the Business Modeling perspective, right-click the element to display
 - Select **Team > Show History** on the context menu for **History view**.
 - Select three or more versions, and then right-click one of them to view history.
 - Click **Audit Trail** on the context menu for the **Audit Trail view**.
 - In the **Audit Trail view**, right-click the newer version.
 - Select **Show Details** for the **Comparison view**.

Version	Author	Date	Comment	
\main\3	Administrator	Saturday, January 24, 2009 3:17:12 AM EST	Added Price	Load Content Compare Audit Trail Refresh Report...
\main\2	Administrator	Saturday, January 24, 2009 3:02:41 AM EST	Added Product Description	
\main\1	Administrator	Saturday, January 24, 2009 2:58:37 AM EST	Initial Version	

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Figure 12-25. Audit trail

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Notes:

Load content

- The Load Content command will retrieve a specific version of a component to the local workspace and overwrite any local changes.
- Local changes must be committed to the repository before issuing this command to save the changes.

Version	Author	Date	Comment	
\main\3	Administrator	Saturday, January 24, 2009 3:17:12 AM EST	Added Price	
\main\2	Administrator	Saturday, January 24, 2009 3:02:41 AM EST	Added Product Description	
\main\1	Administrator	Saturday, January 24, 2009 2:58:37 AM EST	Initial Version	

Load Content
Compare
Audit Trail
Refresh
Report...

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Figure 12-26. Load content

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Notes:

Disconnect projects

- A user can stop sharing a project by closing the connection between the local machine and the version control system.
 - Closing a connection does not remove the project from the version control system.
 - Other team members can still access the repository copy.
- Disconnect does not remove the project from your workspace.
- To reconnect to the repository copy:
 - Remove the project from local workspace.
 - Check out the project from the repository to the local machine.

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Figure 12-27. Disconnect projects

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Notes:

Best practices for deleting elements

- Develop a shared element removal naming convention
- Identify element to be removed
- Flag element to be removed
- Commit renamed element
- Update all projects
- Notify and gain agreement
- Remove and commit removal
- Everyone deletes from their project
- Projects are now synchronized

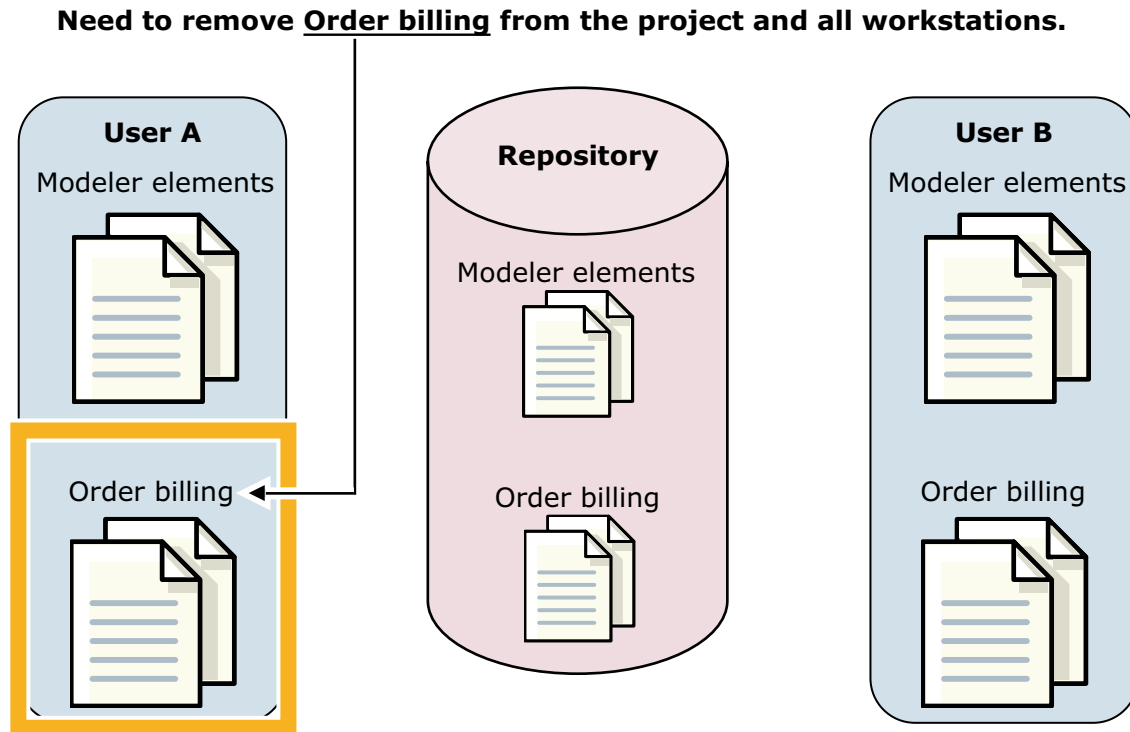
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Figure 12-28. Best practices for deleting elements

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Notes:

Identify element to be removed



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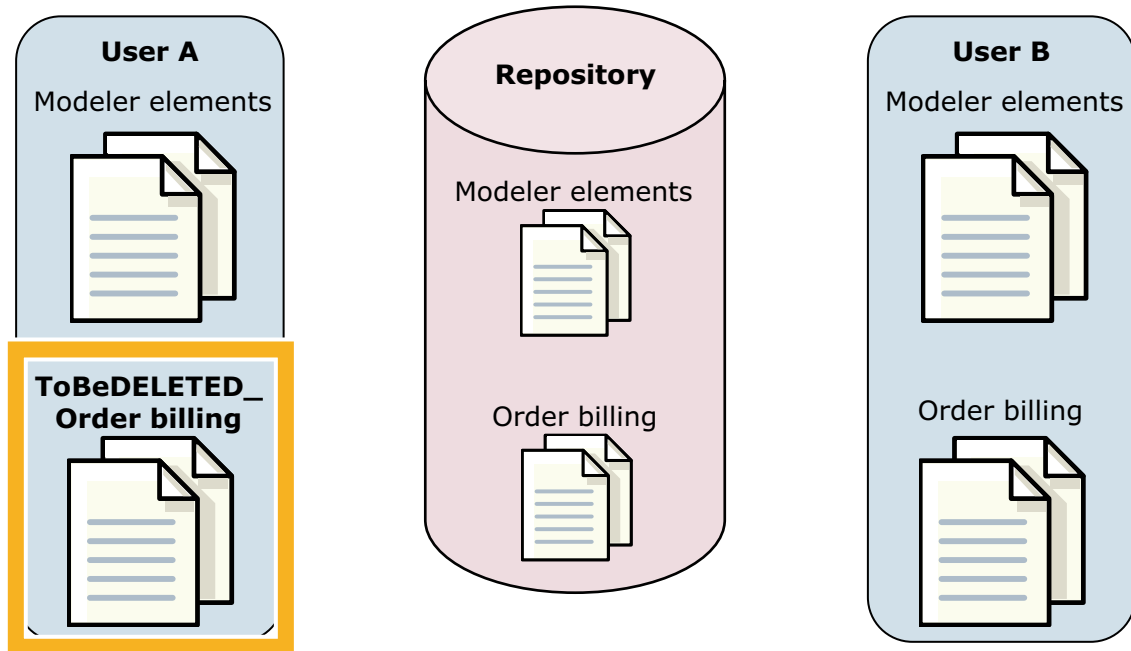
Figure 12-29. Identify element to be removed

WB284 / VB2841.0

Notes:

Flag element to be removed

Flag Order billing for removal by renaming it.



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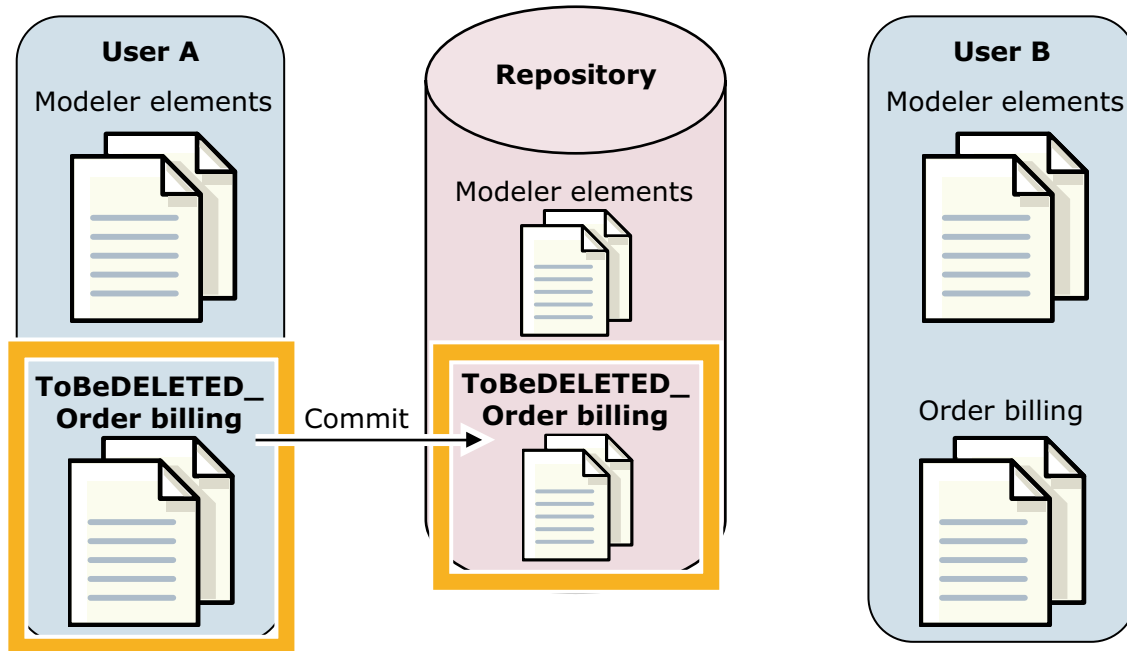
Figure 12-30. Flag element to be removed

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Notes:

Commit renamed element

Commit changes to the repository.



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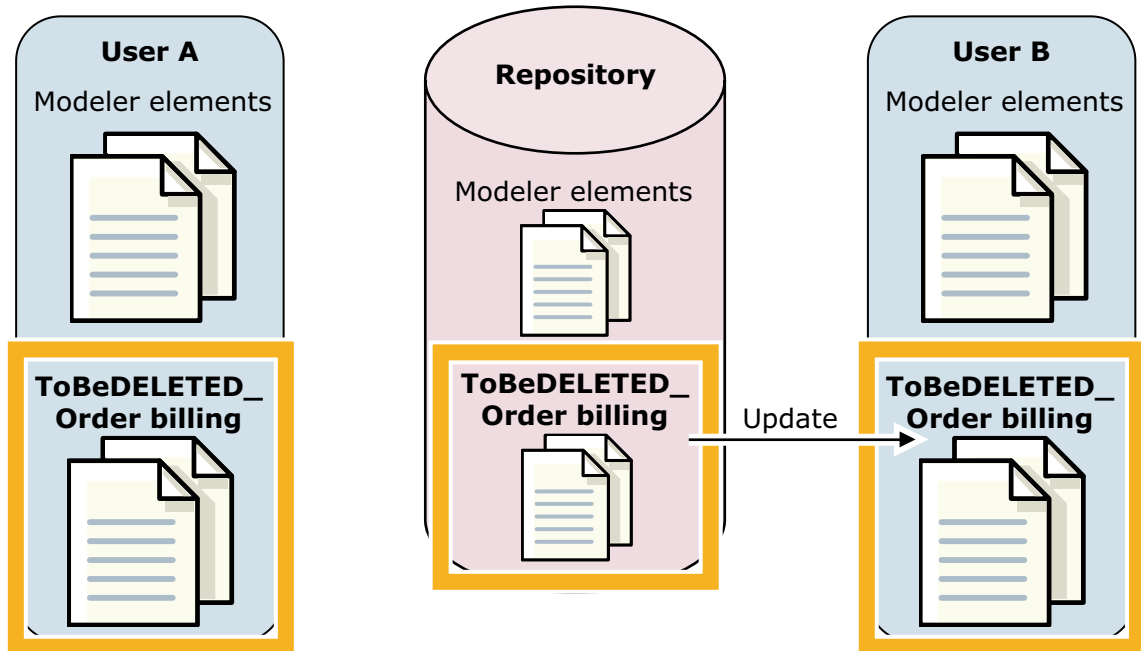
Figure 12-31. Commit renamed element

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Notes:

Update all projects

All users update their project to receive the renamed element.



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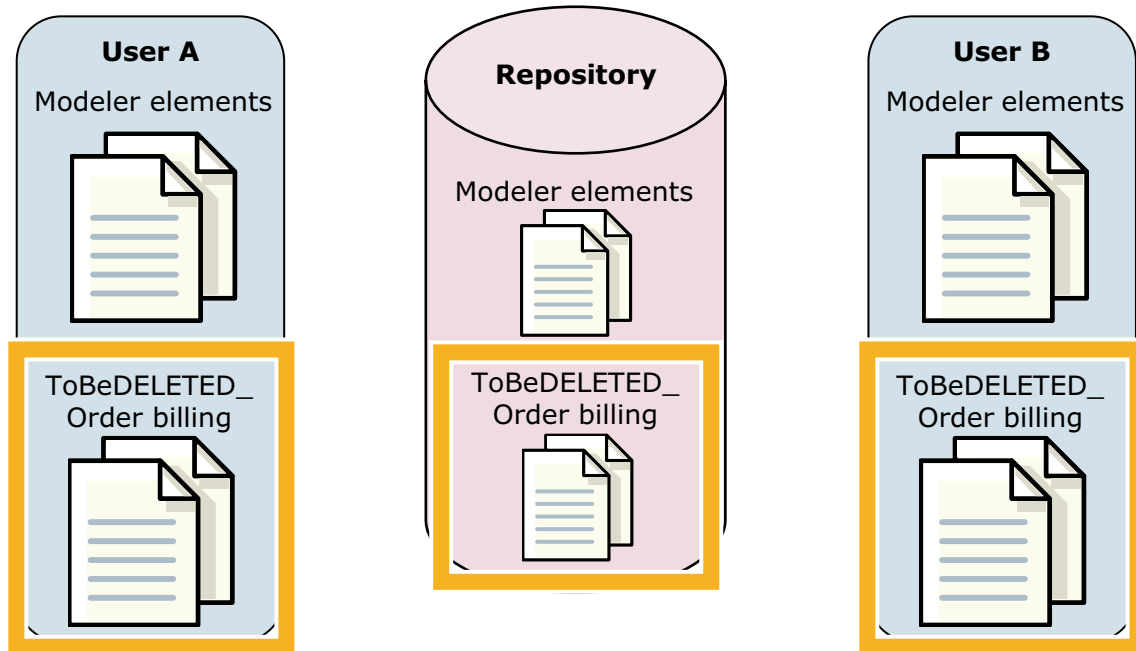
Figure 12-32. Update all projects

WB284 / VB2841.0

Notes:

Notify and gain agreement

Notify everyone and wait until everyone agrees the element can be removed.



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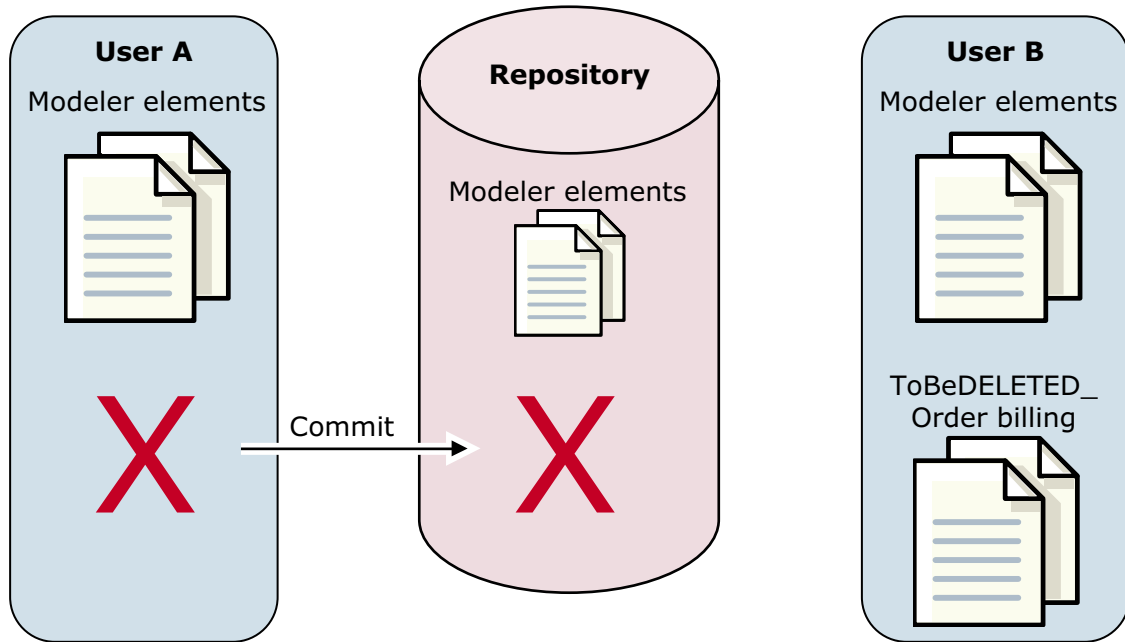
Figure 12-33. Notify and gain agreement

WB284 / VB2841.0

Notes:

Remove and commit removal

Remove, commit to repository, and notify everyone to delete.



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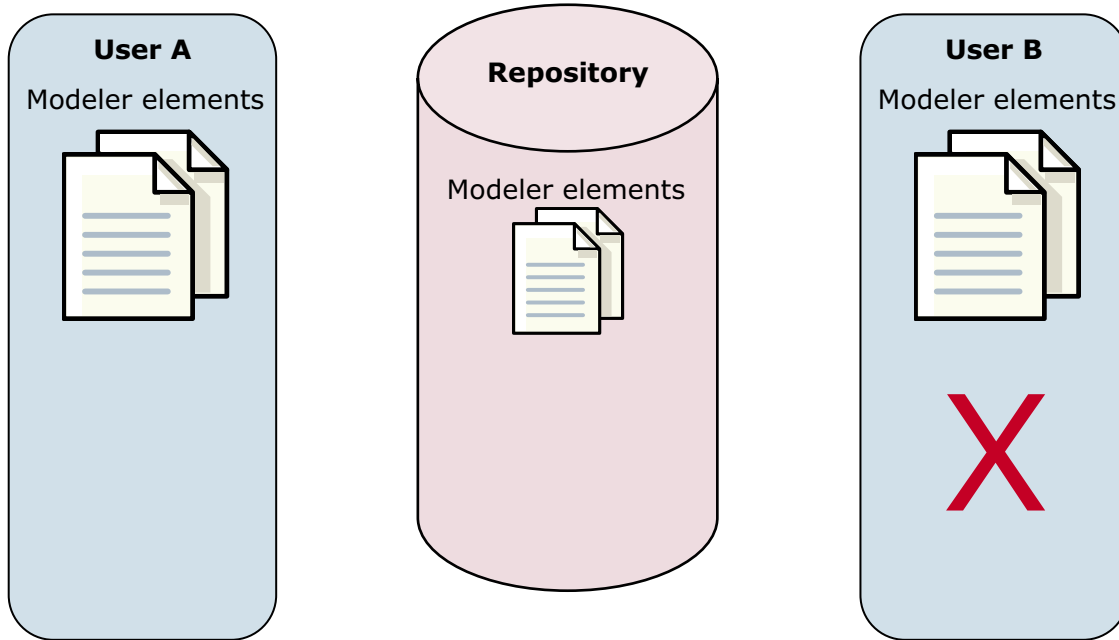
Figure 12-34. Remove and commit removal

WB284 / VB2841.0

Notes:

Everyone deletes from their project

Everyone deletes the element that needs to be deleted. Failure to do so could result in the element being committed and restored on the repository again.



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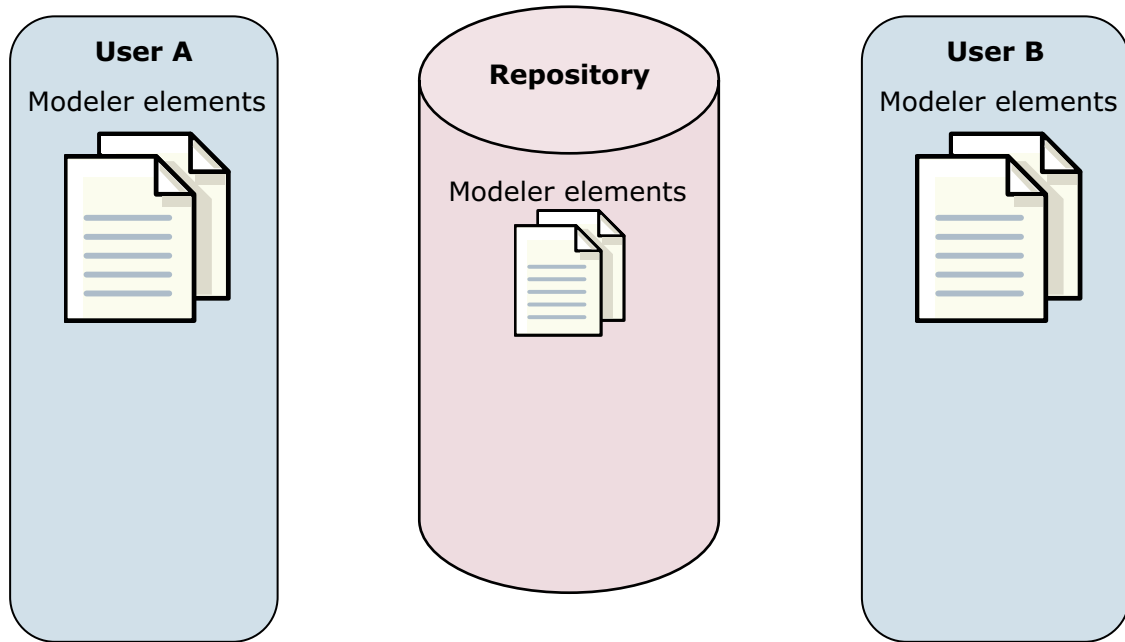
Figure 12-35. Everyone deletes from their project

WB284 / VB2841.0

Notes:

Projects are now synchronized

Projects are synchronized once the elements are deleted from the repository and all local projects.



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Figure 12-36. Projects are now synchronized

WB284 / VB2841.0

Notes:

Checkpoint

1. WebSphere Business Modeler supports which two version control systems?
2. What is the difference between “commit” and “check out”?
3. In which version control system are users able to lock and unlock elements in WebSphere Business Modeler?
4. What is the difference between “update” and “synchronize”?
5. What is the function of “load content”?

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Figure 12-37. Checkpoint

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Notes:

Write your answers here:

- 1.
- 2.
- 3.
- 4.
- 5.

Unit summary

Having completed this unit, you should be able to:

- Explain the need for project versioning
- Describe Concurrent Versions System (CVS)
- Describe IBM Rational ClearCase
- Describe the steps involved in project versioning
- Explain the importance of version control
- Describe development using project versioning
- Explain best practices and deletion strategies

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Figure 12-38. Unit summary

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Notes:

Checkpoint solution

1. WebSphere Business Modeler supports which two version control systems?
IBM Rational ClearCase and Concurrent Versions System (CVS).
2. What is the difference between “commit” and “check out”?
“Commit” synchronizes your local workspace and the version control system’s repository by sending the changes you made. “Check out” enables you to work with and modify a local copy of the project.
3. In which version control system are users able to lock and unlock elements in WebSphere Business Modeler?
IBM Rational ClearCase.
4. What is the difference between “update” and “synchronize”?
“Update” retrieves the latest version of the elements in the catalog or project from the repository. “Synchronize” compares the local contents of the catalog or project with the contents of the repository.
5. What is the function of “get content”?
The “get content” command retrieves a specific version of a component to the local workspace and overwrites any local changes.

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Figure 12-39. Checkpoint solution

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Notes:

Exercise overview

In this exercise, you will:

- Use Rational ClearCase for version control
 - Rational ClearCase server is installed on your VMware image
- Add a project to Rational ClearCase
- Make and managing changes in your project
- Update a project from the repository
- Work in a multiple-developer environment

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Figure 12-40. Exercise overview

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Notes:

Unit 13. WebSphere Business Modeler Publishing Server overview

What this unit is about

This unit describes the WebSphere Business Modeler Publishing Server overview.

What you should be able to do

After completing this unit, you should be able to:

- Explain the purpose of the WebSphere Business Modeler Publishing Server
- Describe the WebSphere Business Space
- Model, integrate, and publish a project

How you will check your progress:

- Checkpoint
- Lab exercises

References

None

Unit objectives

After completing this unit, you should be able to:

- Explain the purpose of the WebSphere Business Modeler Publishing Server
- Describe the WebSphere Business Space
- Model, integrate, and publish a project

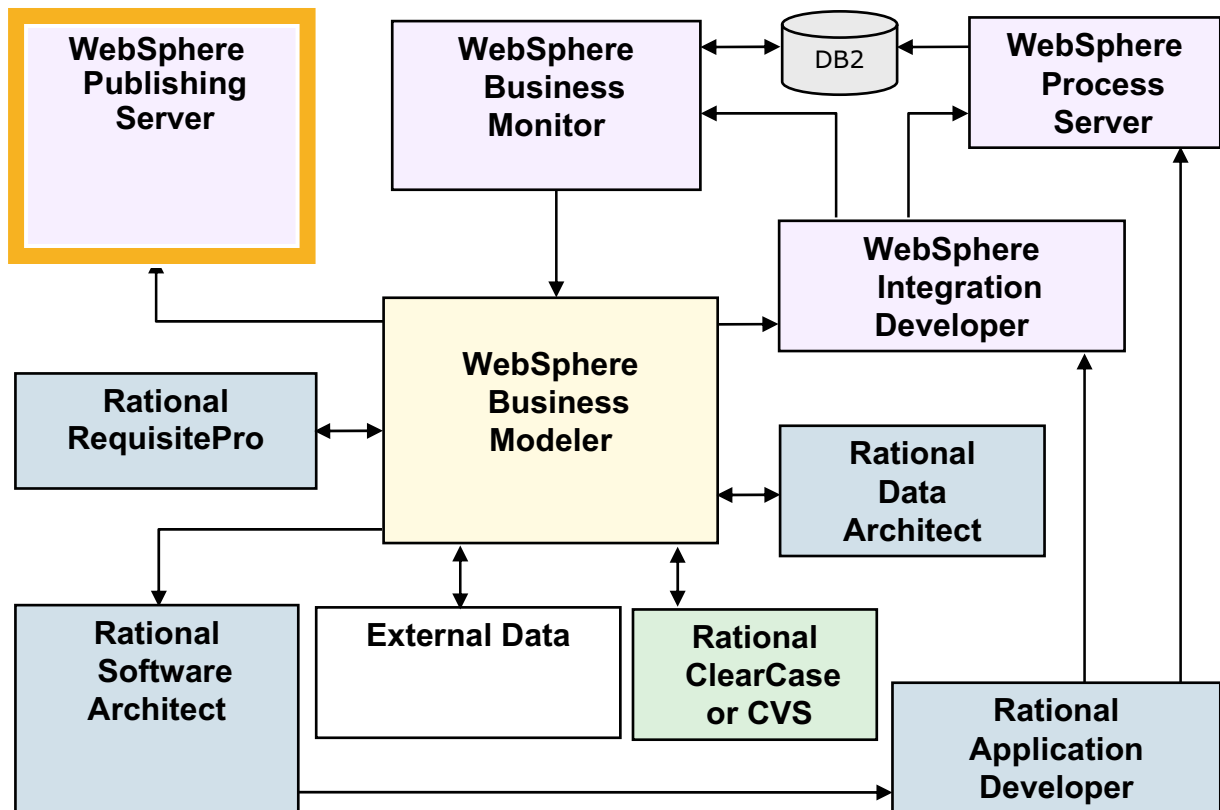
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Figure 13-1. Unit objectives

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Notes:

Collaboration using Publishing Server



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Figure 13-2. Collaboration using Publishing Server

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Notes:

WebSphere Business Modeler Publishing Server overview

- Brings publishing capabilities to WebSphere Business Modeler by providing a mechanism for viewing and reviewing business process models using a Web browser
- Publishes models so those without WebSphere Business Modeler installed can view and comment on the models
- Publishes business processes and related business information, such as model diagrams, to a secure Web site
- Supports the development, documentation, and dissemination of business process models on an enterprise and worldwide basis

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Figure 13-3. WebSphere Business Modeler Publishing Server overview

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Notes:

Provide a way of gathering information and validating the business process models and then distributing for reviews.

- Accurate process models:
 - A tool to view visual representations of business processes and supporting information.
 - The more accurate and detailed the modeled business processes are, the more accurate the results of the analysis performed on the model.
 - A more accurate model can forecast the effects of changing the business processes.
- Viewable business processes:
 - Publishing Server can publish the business process model to make it more widely available within an organization.

- Any authorized person in the organization can then view the process using a standard Web browser.

Benefits of Publishing Server

- An important step in modeling the business processes is to validate the model's data.
- Users add comments during validation phase.
- The published business processes may also have attachments.
- The published business process can also serve as a training tool.

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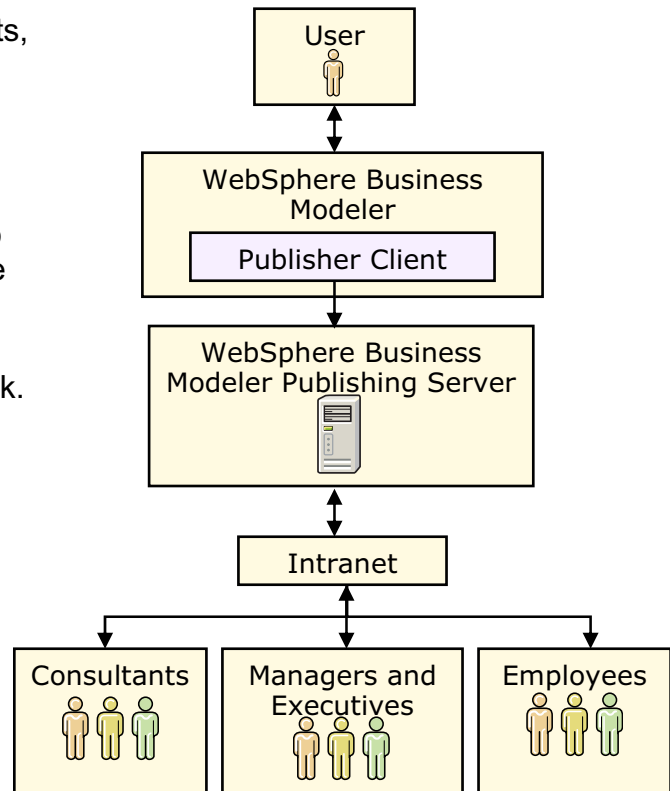
Figure 13-4. Benefits of Publishing Server

WB284 / VB2841.0

Notes:

How users interact with publishing server

- Users may include business analysts, consultants, or process engineers.
- Reviewers may include executives, consultants, employees, partners, and even customers.
- Reviewers validate the data used to create the process model or provide feedback.
- Users make adjustments to the process based on reviewer feedback.
- Publish a single model element, a complete catalog, or the entire process model project.
- The reviewers can then comment on the updated process model or respond to comments.
- This creates an environment for continuous improvement of the process model.



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Figure 13-5. How users interact with publishing server

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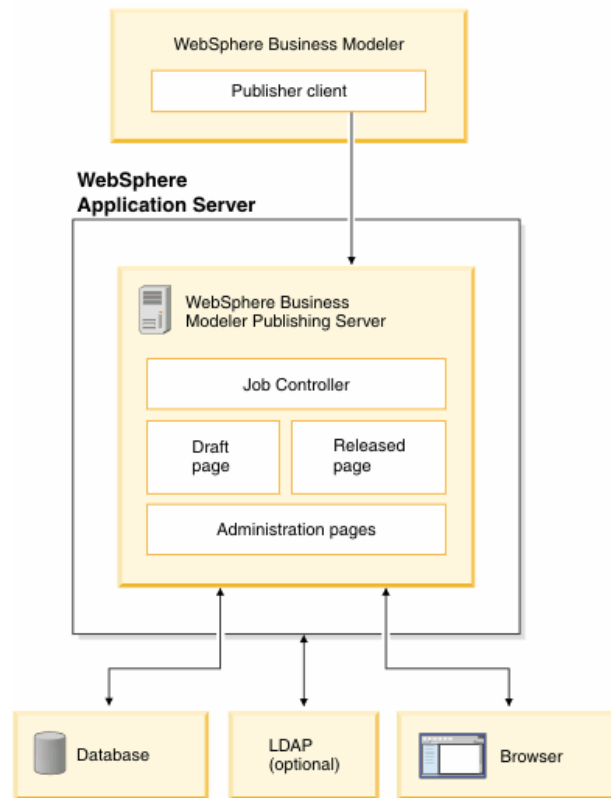
Notes:

Users of WebSphere Business Modeler Publishing Server can interact with a publishing server using publisher clients and Web browser clients.

Users who have WebSphere Business Modeler can use its publisher client to send business processes to a publishing server. Users with Web browsers can be reviewers who validate the data used to create the process model or provide feedback so that the modeling team can update the model or people who want to reference the process model for information. These users may include executives, consultants, employees, partners, and even customers.

Technical overview

- Web application that runs within WebSphere Application Server
- Uses Business Space powered by WebSphere to display the pages and views that contain projects, project elements, and comments in a Web browser client
- DB2 database to store data
- Publisher client is integrated within WebSphere Business Modeler
 - Transforms selected model elements
 - Sends the transformed information to the specified publishing server
- Publishing server places the transformed models into the DB2 database



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Figure 13-6. Technical overview

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Notes:

Publishing server

The publishing server part of WebSphere Business Modeler Publishing Server is a Web application that runs within WebSphere Application Server. WebSphere Business Modeler Publishing Server uses Business Space powered by WebSphere to display the pages and views that contain projects, project elements, and comments in a Web browser client.

WebSphere Business Modeler Publishing Server uses a DB2 database to store data. The database can be on the same host as WebSphere Business Modeler Publishing Server or it can be a remote database. When the publisher client publishes model elements, the publishing server places the information into the database. When a user requests to see a published model element, the publishing server uses the information in the database to dynamically construct the HTML page and delivers it to the browser client.

WebSphere Business Modeler Publishing Server requires enabled security to enforce its roles. WebSphere Business Modeler Publishing Server uses the WebSphere Application Server mechanism of user ID and password combination to authenticate users. The user registry that maintains user IDs and passwords is either the default WebSphere Application

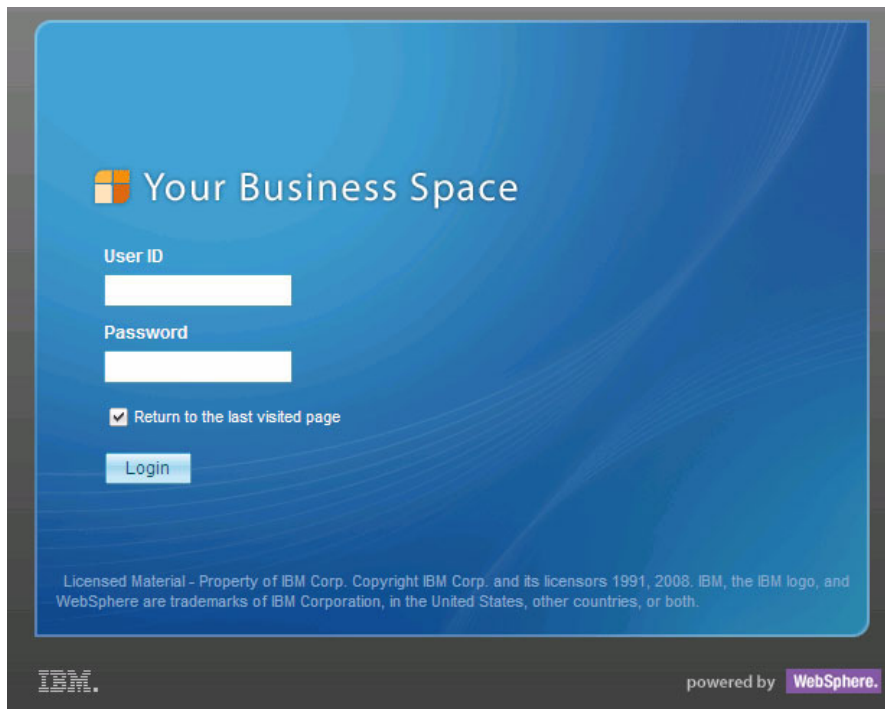
Server user registry or an LDAP server. After the user has been authenticated, and the user has selected an element in the Publisher Navigator view, the publishing server consults the database to determine whether the user (or the group the user belongs to) has the access rights required to view the element.

Publisher client

The publisher client is integrated within WebSphere Business Modeler and it provides the interface to one or more servers running IBM WebSphere Business Modeler Publishing Server Version 6.2. The publisher client transforms selected model elements and then sends the transformed information to the specified publishing server. The publishing server places the transformed models into the DB2 database.

Integration with Business Space (1 of 2)

- A single point of entry to BPM content



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Figure 13-7. Integration with Business Space (1 of 2)

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Notes:

Business Space Terminology:

Business Space Manager

The Business Space Manager is where you manage your business spaces, which includes creating and deleting them, adding pages to them, and setting who can view and edit them.

Space templates

Space templates create predefined business spaces. Business Space provides product space template and cross-product space templates. After you create a space based on a space template, you can freely modify the contents of the space to fit your objective for the space. The template serves as the starting point for your space.

Access control

Business Space can control whether a user can access a space or a page and what the user can do within that space or page.

Pages

A page is a collection of related widgets that form a mashup. A mashup is a Web

application that combines content that is retrieved from various external data sources such as WebSphere Business Process Management products.

Widgets

In Business Space, a widget is a Web application that you can add to a page.

Integration with Business Space

- Business Space displays business spaces, pages, and widgets with content from products in WebSphere BPM portfolio
- A business space is a collection of related Web content
- Can have many business spaces, each for a different purpose
 - For example, a space with widgets from Business Monitor might be used to monitor your KPIs
- Business Space can display the contents of one space at a time
- Can include widgets from other IBM products
 - WebSphere Integration Developer
 - WebSphere Process Server
 - WebSphere Business Services Fabric
 - WebSphere Business Monitor

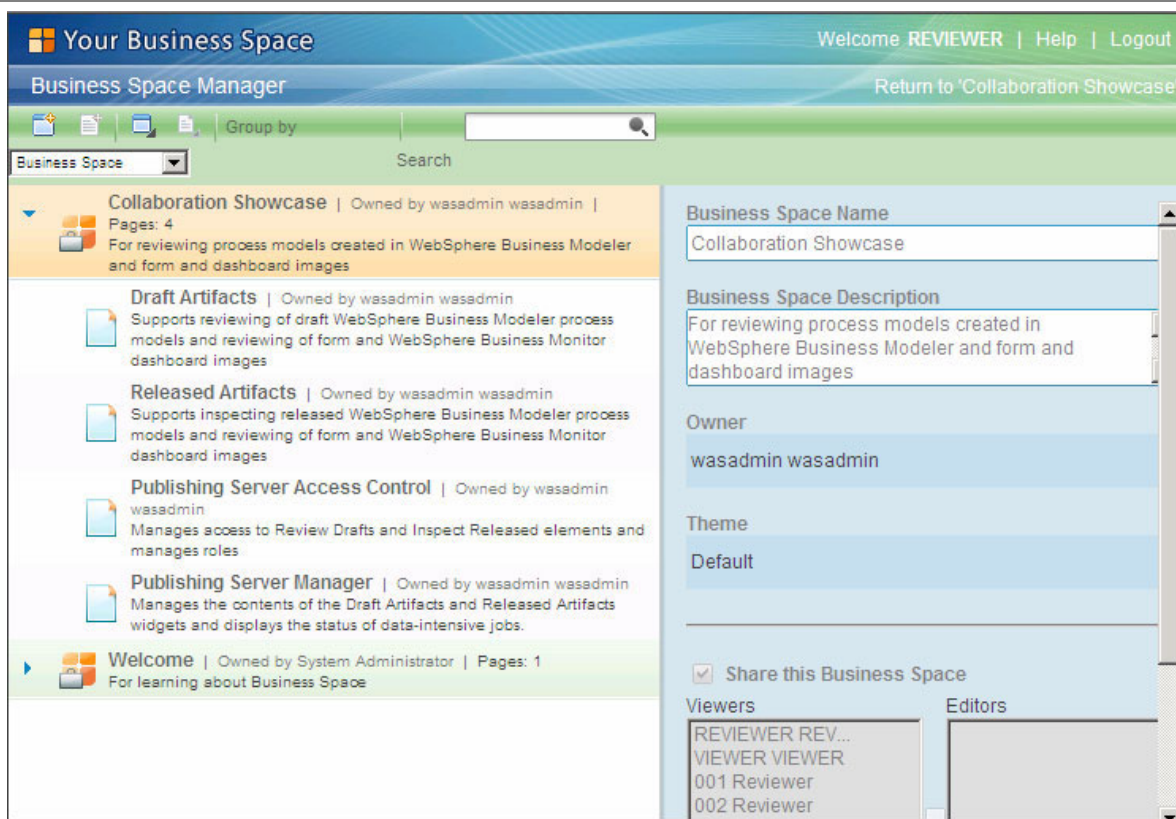
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Figure 13-8. Integration with Business Space

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Notes:

Business space manager



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Figure 13-9. Business space manager

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Notes:

- Serves as the gateway to the Draft and Released Artifacts
- Contains a single page which has links to draft projects, released projects, and Online help

Roles for publishing server

- User
 - Has viewer or editor access to page with a Draft artifacts widget or a Released Artifacts widget
 - “Viewer” can view draft or released projects.
 - “Editor” can add comments, responses, and attachments to project elements
- Publishing server administrator
 - Owner of the space containing one or more pages with a Draft Artifacts widget or a Released Artifacts widget
 - Manages the access and content in the Draft Artifacts widget or the Released Artifacts widget and manages access to these widgets
- Publisher
 - Identifies which publishing server and space will host the business process being reviewed, and what parts of the process will be published
 - Uses WebSphere Business Modeler to send the information to the server and space

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Figure 13-10. Roles for publishing server

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Notes:

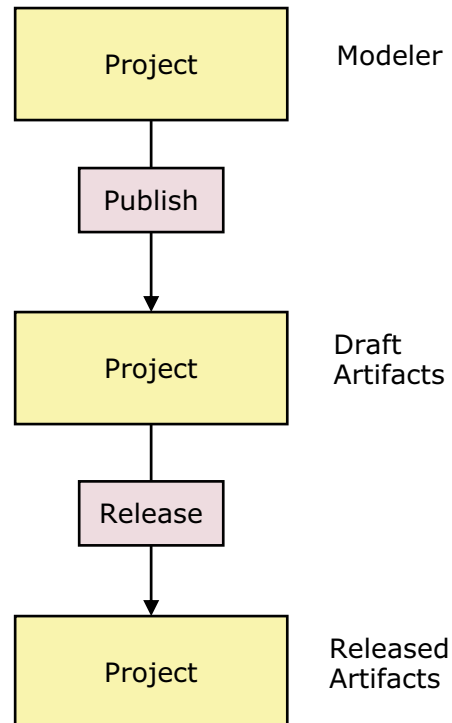
An example of a user is a subject matter expert, who provides feedback on specific parts of the model. A subject matter expert is more likely to need access to projects on a Draft Artifacts widget than on a Released Artifacts widget. Another example of a user is a trainer who is teaching employees about the process that they will use and where the work they will do fits. This user would probably only need access to projects contained in a Released Artifacts widget.

A *publishing server administrator*: Managing content involves releasing all the published projects and deleting data for a project by deleting the entire project or a single element. Managing user access involves setting user permissions through assigning the user to a group with specific permissions or by assigning permissions to the user directly.

A *publisher* is a person who has assigned the role of publisher for the space in the Publishing Server Access Control widget and uses WebSphere Business Modeler. The publisher identifies which publishing server and space will host the business process being reviewed, what parts of the process will be published, and then sends the information to the server and space.

Draft and Released

- Draft Artifacts page displays projects that are actively being developed by a modeling team or are being commented on by reviewers.
- The modeling team uses the Draft artifacts to gather and exchange information about model elements in the project and to gain consensus about what the models should look like and what the project should contain.
- The Released Artifacts displays projects that are ready to be used as a reference.
- When an administrator releases a project, the Released Artifacts receives a copy of the draft project.
- It contains only the elements and attachments that were in the draft project when it was released.
- The purpose of the Released Artifacts is to allow viewers to see processes and their related information.



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Figure 13-11. Draft and Released

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Notes:

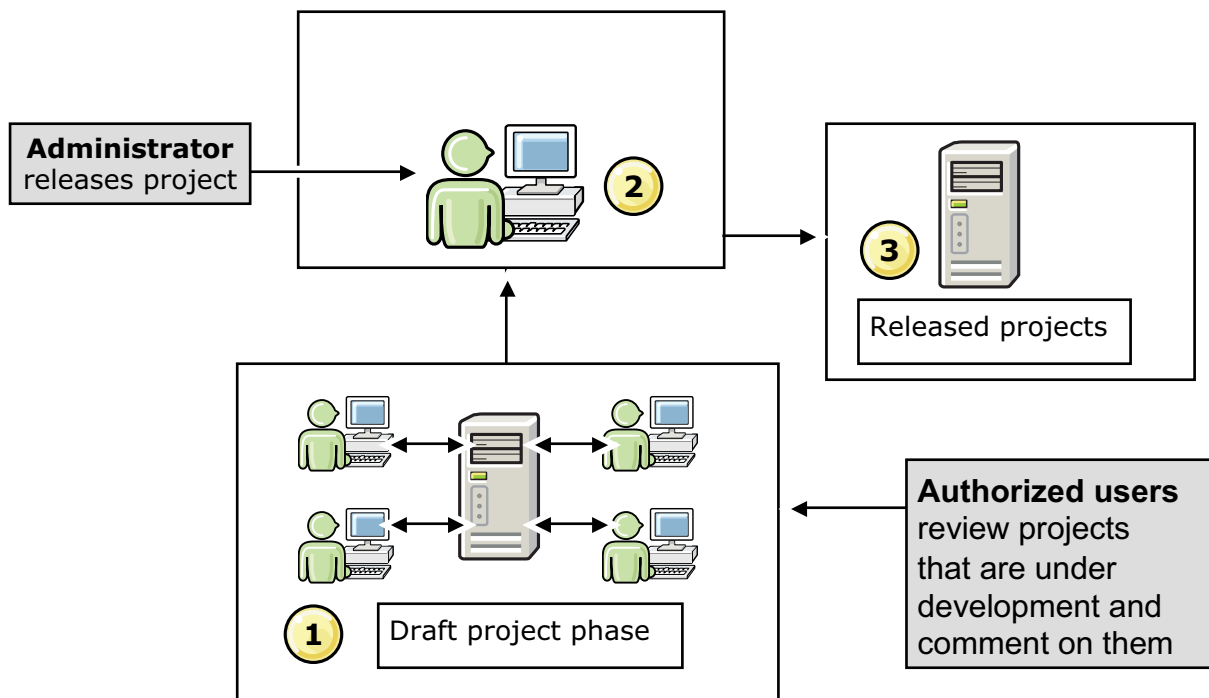
With this arrangement, a version of the project can exist in WebSphere Business Modeler, in the Draft Artifacts and in the Released Artifacts. When the modeling team is ready to have a project reviewed, the team publishes it to the Draft Artifacts.

The modeling team can continue to work on the version in WebSphere Business Modeler without affecting the version in the Draft Artifacts. One of the activities that the modeling team should do is to look at the comments made by reviewers on the Draft Artifacts version and make appropriate changes to the version in WebSphere Business Modeler. Eventually, the modeling team will want to show the reviewers the updated version of the project, including the changes they made due to the comments. To provide the updated version, the modeling team republishes the project, which refreshes the version on the Draft Artifacts.

At any time, an administrator can release a copy of the Draft Artifacts version to the Released Artifacts. Reviewers can continue to comment on the Draft Artifacts version without affecting the content of the Released Artifacts. Typically, a project in the Draft Artifacts undergoes several publishing refreshes before the administrator releases it. The

administrator can re-release a project and then refresh the version in the Released Artifacts.

From draft to released project



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Figure 13-12. From draft to released project

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Notes:

Draft Artifacts

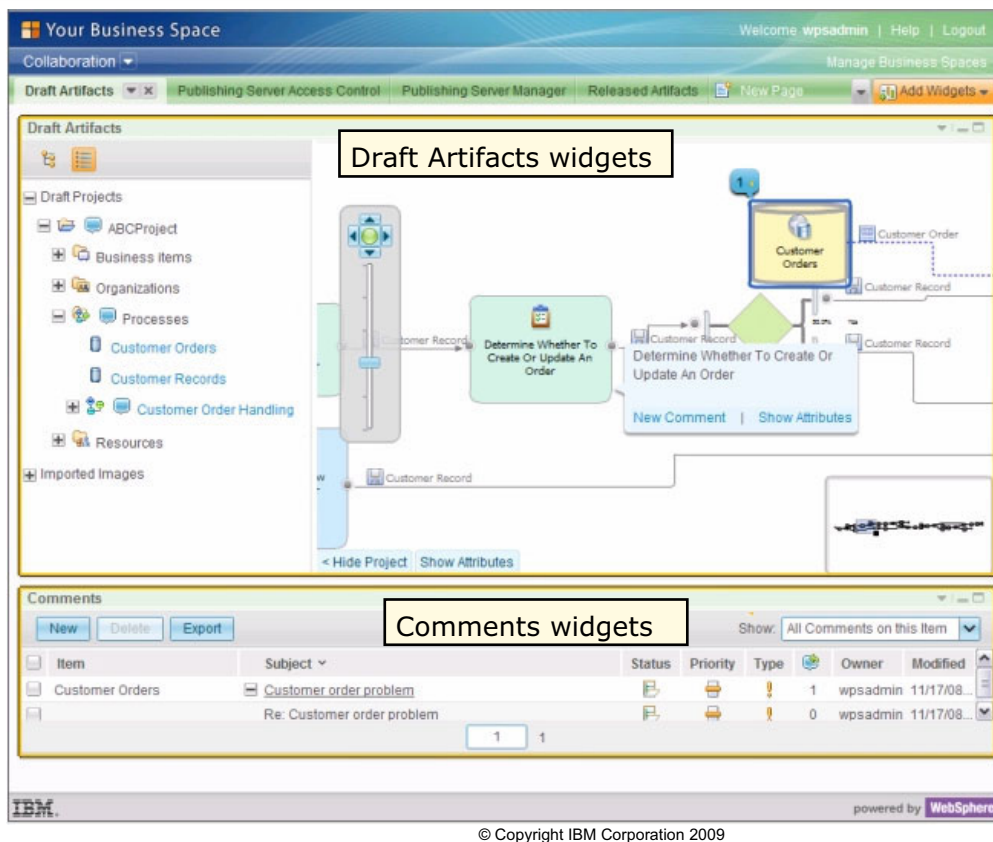


Figure 13-13. Draft Artifacts

WB284 / VB2841.0

Notes:

The Draft Artifacts widget

Use the Draft Artifacts widget to select and view project elements or images that are currently under review.

The Comments widget

Use the Comments widget to manage notes and observations that are associated with the information currently being displayed on this page.

Released Artifacts

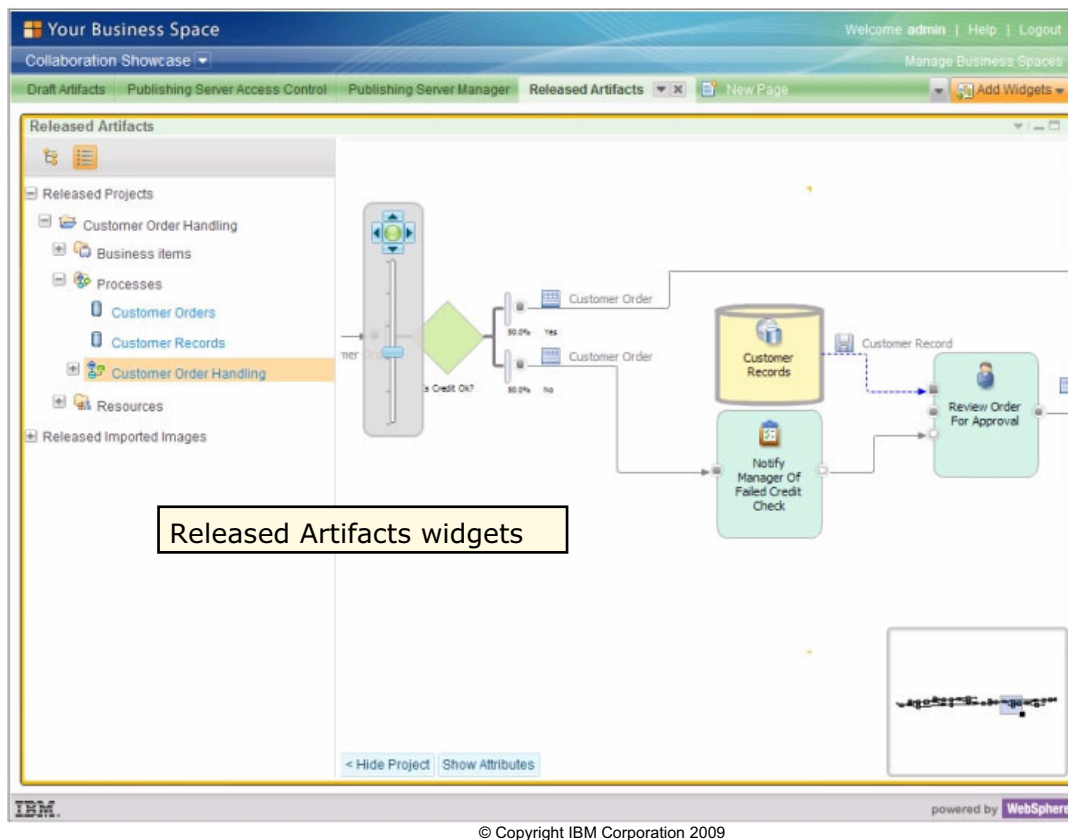


Figure 13-14. Released Artifacts

WB284 / VB2841.0

Notes:

The Released Artifacts widget is a stand-alone widget used in within the Released Artifacts page. In a typical usage scenario, you would select a process (or another form of information) that has already gone through the review process in the Publisher Navigator, and examine it in the Process Viewer.

There is no comment widget in the Released Artifacts.

Publishing a project

- Connecting to a publishing server
 - A Web browser is used to view and comment on published project elements.
 - Examples include processes, business items, and resources.
- Setting the default publishing server
 - Set a default publishing server to host published projects.
- Edit the connection to a publishing server
 - To change the information used to connect to the server.
 - For example, update password or change user information.
- Removing a connection from a publishing server
 - To remove obsolete or unavailable servers from the list of available servers.
 - Once a publishing server connection is removed, user cannot publish a project to it.
- Sending a project to the server
 - Publishing a project, or selected elements in the project, sends a new copy of the project to the publishing server.

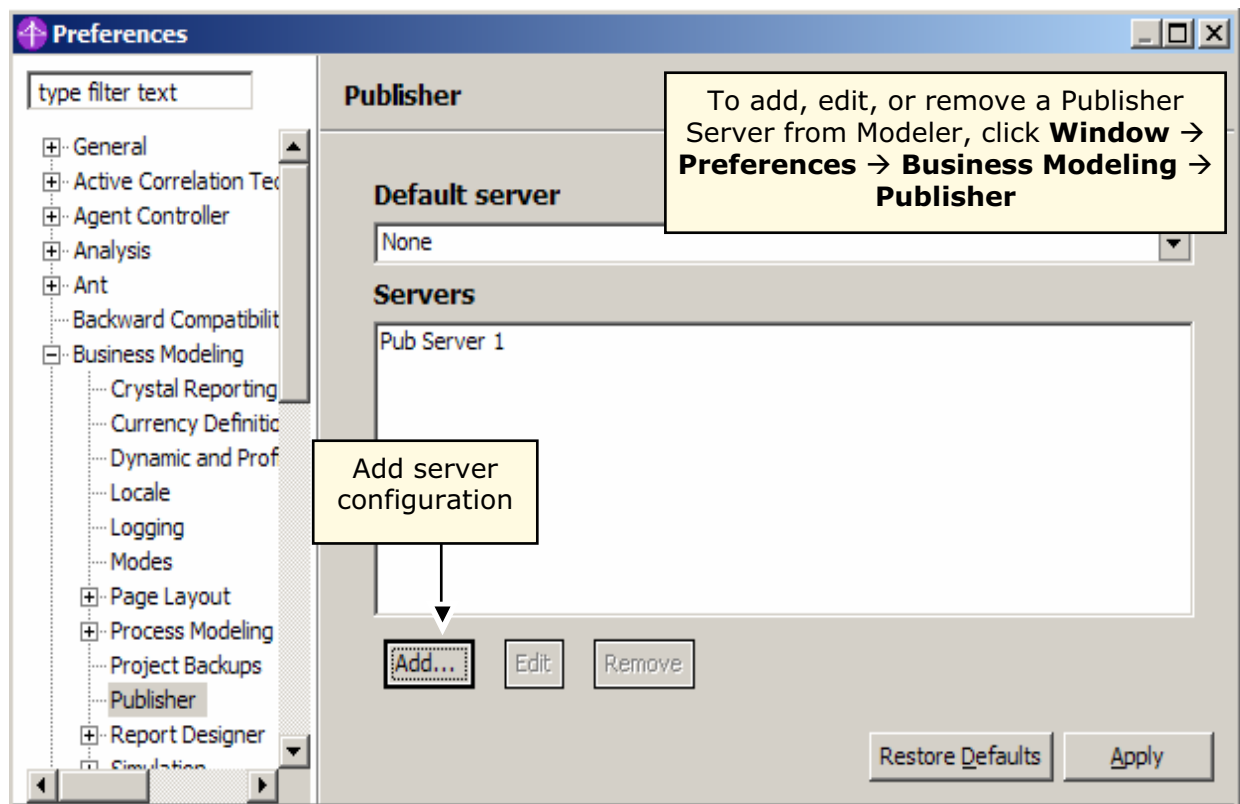
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Figure 13-15. Publishing a project

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Notes:

Publisher settings in Modeler



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Figure 13-16. Publisher settings in Modeler

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Notes:

Add a publishing server

New Server

Add a publishing server

Publishing servers host published projects so that authorized users can view them using a Web browser.

Name: Pub Server 1

Server address: localhost

Port number: 9080

User ID: wasadmin

Password: *****

Space: Collaboration Showcase Browse...

https ☐

Finish Cancel

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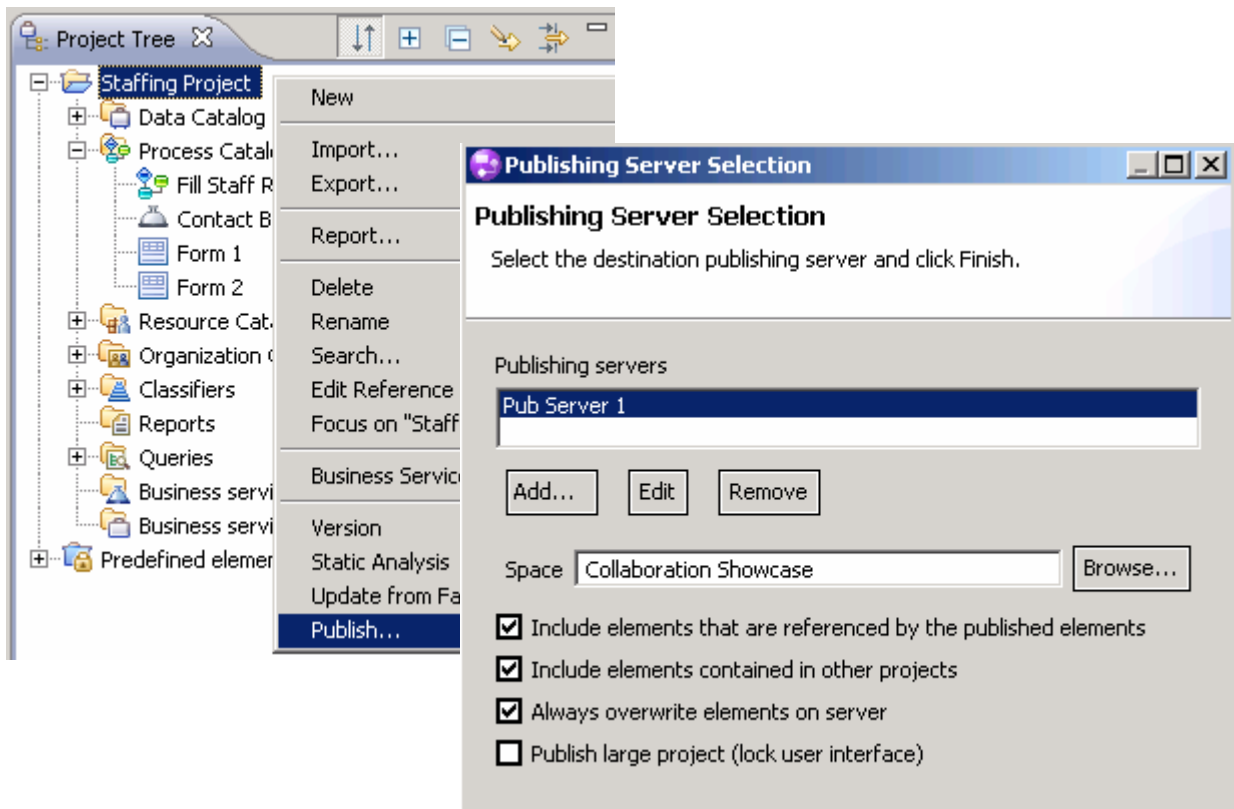
Figure 13-17. Add a publishing server

WB284 / VB2841.0

Notes:

- In the **Name** field, type an alias for the server. When you publish a project, this is the name that WebSphere Business Modeler displays when it lists the servers that are available.
- In the **Address** field, type the name or IP address of the publishing server.
- In the **Port** field, type the port number. The default port is 9080.
- In the User ID and Password fields, type the name and password.
- In the **Space** field, click **Browse** to select the space being published to.
- If the publishing server is SSL-enabled (Secure Socket Layer) and you want WebSphere Business Modeler to use SSL when publishing, enable **HTTPS**.

Publish a project with references



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Figure 13-18. Publish a project with references

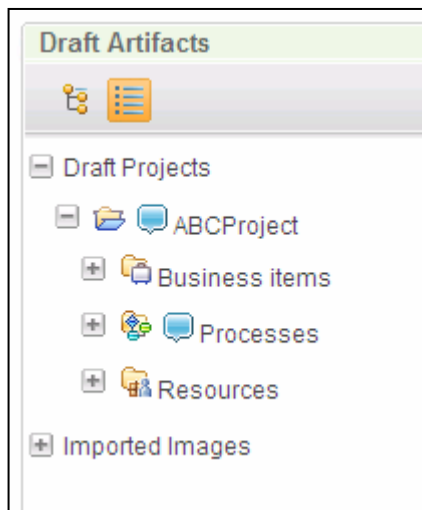
WB284 / VB2841.0

Notes:

If you are publishing one or more elements from a project but not the complete project, you can set whether to include other elements that your selected elements reference. To do this, select the **Include elements that are referenced by the published elements** check box. Typically, you would clear this check box if you are updating specific elements on the server and you do not want to update the referenced elements.

Optional: If you are publishing a large project, enable Publish large project. If you select this option, WebSphere Business Modeler closes all open editors and locks its user interface while it compiles the information it sends to the publishing server. After it has compiled the information, WebSphere Business Modeler unlocks its user interface.

Publisher Navigator



	Long list or Full
	Filtered list or Simplified
	Indicates that the associated element, or one or more of its children nodes, has at least one comment
	Indicates that the element, or one of its children, has a file that was attached in WebSphere Business Modeler

- Draft artifacts
 - This folder embeds all of the draft project elements as exported from WebSphere Business Modeler
- Imported Images
 - This folder holds the imported form and WebSphere Business Monitor dashboard images. You can also create folders and add images to these folders.

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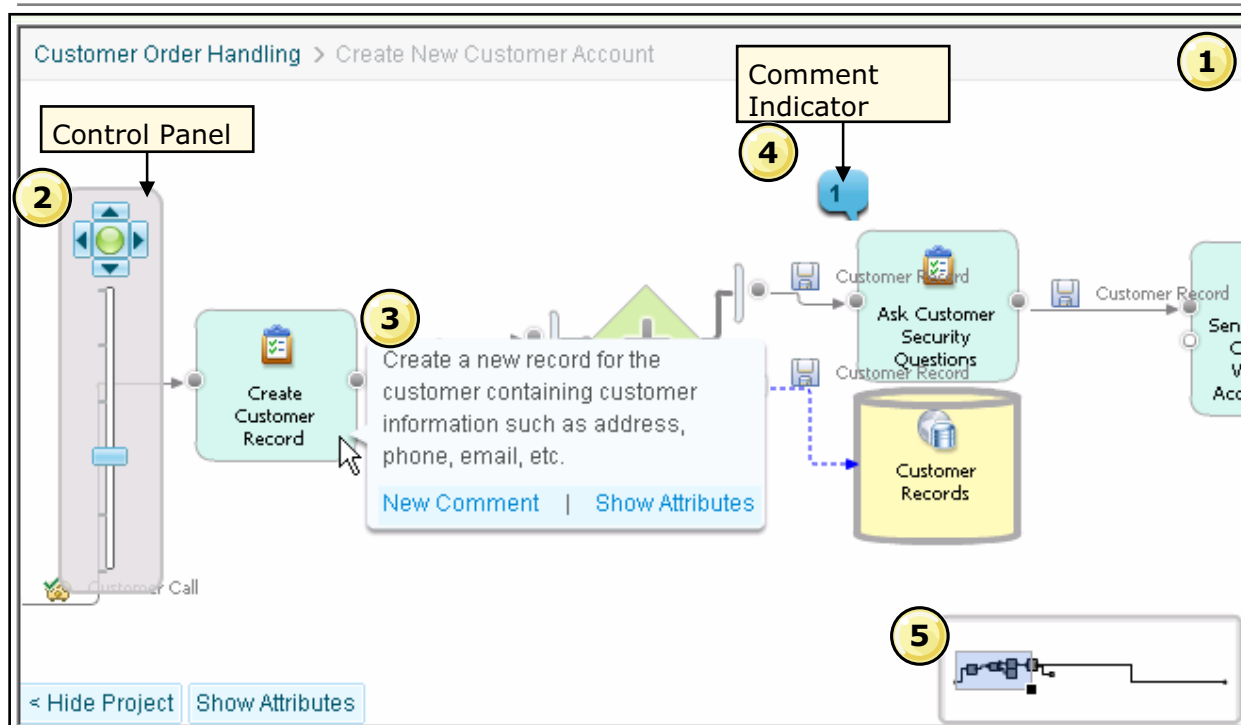
Figure 13-19. Publisher Navigator

WB284 / VB2841.0

Notes:

The **Publisher Navigator** uses a tree format to display all of the artifacts that are available for comment. To view an artifact, expand the nodes on the list and click the name of an artifact. The artifact is displayed in the Process Viewer.

Process Viewer



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Figure 13-20. Process Viewer

WB284 / VB2841.0

Notes:

1. Process Viewer

- The Process Viewer displays the information that contains the elements on which you will be able to comment.
- To move the diagram around within the viewer, click the diagram anywhere in the viewing area, and drag it.
- To use the entire widget to display the diagram, click **< Hide Project**. This will conceal the Publisher Navigator, and use the whole widget to display the diagram. To reveal navigation that has been hidden, click **> Show Project**.

2. Control panel

- To modify the way the diagram is displayed in the viewer, configure the settings on the control panel.
- To shift the diagram in the viewer, click the appropriate direction arrow on the control panel. The diagram will move in the direction chosen.

- To return to the diagram's start node in the Process Viewer, click the central green circle.
- To change the magnification of the diagram in the Process Viewer, adjust the slider accordingly. When the indicator is closer to the top, the magnification level is greater.

3. Action Bar

- The action bar appears when you hover over one of the elements in the Process viewer, and displays the name of that element. Using the action bar, you can create a comment or see the properties associated with the element.

4. Comment indicator

- Clicking the comment indicator icon shows the elements that have comments associated with them, and displays the number of comments.
- You can interact with the indicator as follows:
 - To launch a small window that shows a list of the subject lines of each of the comments that are associated with the element, click the comment indicator. To view the complete comment, click a subject line.
 - To add a new comment, click the plus icon (+).

5. Overview

- The overview shows a miniaturized version of the overall diagram with a blue box inside to show the part of the diagram that is currently displayed in the Process Viewer.
- To move the diagram in the viewer using the overview, click and drag the blue box.
- To adjust the magnification of the diagram in the viewer using the overview, click the handle on the corner of the blue box and adjust the size accordingly. The diagram in the Process Viewer adjusts automatically to match the overview.

Comments widget

The screenshot shows the 'Comments' widget interface. At the top, there are buttons for 'New', 'Delete', and 'Export'. A 'Show:' dropdown menu is set to 'All Comments in Process'. Below this is a table with columns: Item, Subject, Status, Priority, Type, Owner, and Modified. Two comment entries are visible:

Item	Subject	Status	Priority	Type	Owner	Modified
Ask Customer Security Questions	Business procedure				1 REVIEWER	12/29/08...
	Re: Business procedure				0 REVIEWER	1/21/09...

Below the table is a legend explaining the icons used in the columns:

	Subject	Displays the subject line associated with the comment.
	Status	The following status states are possible: Open Closed
	Priority	The following priority states are possible: High Medium Low
	Comment type	The following comment types are possible: Problem Question Suggestion Other

	Number of responses	The number in this column indicates the number of responses associated with this comment.
	Sort ascending icon	This icon indicates that the column on which it appears is currently being sorted in ascending order.
	Sort descending icon	This icon indicates that the column on which it appears is currently being sorted in descending order.

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Figure 13-21. Comments widget

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Notes:

Comments management area

- Use the buttons and fields in this area to exercise handle comments.
- To create a comment, click **New Comment**,
- To remove an existing one, click **Delete Comment**.
- To copy the details of a comment to your local system, click **Export**.
- To abridge or scope the range of comments that are shown, select an appropriate setting in the **Filter by:** drop-down list.

Comments list

- Use this column to view the comments that are currently associated with the selected element.
- To view a comment, click the subject line to launch the comment view. From here, you can respond to the comment by clicking **Reply** or, if you are the author of the comment, you can make changes by clicking **Edit**.

- If a comment has a plus (+) sign, then there is a response associated with it. If the subject title has the prefix "Re:" then the listing is a response.
- If a comment has an attachment icon (paper clip) beside it, then there is either a file or URL included with it.

Opening comments

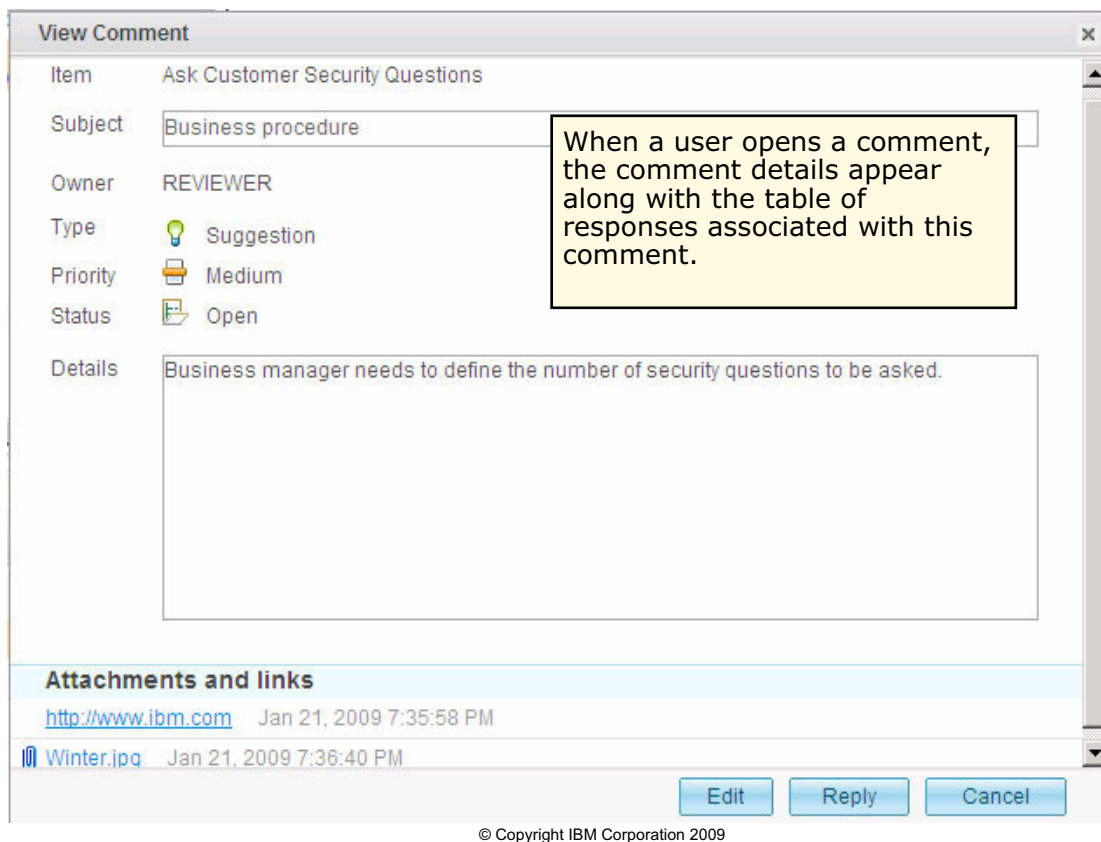


Figure 13-22. Opening comments

WB284 / VB2841.0

Notes:

Adding comments

When adding comments, users specify the comment type, priority, and status in addition to the comment subject and details.

The screenshot shows the 'Add Comment' dialog box. The 'Item' field is set to 'Create Customer Record'. The 'Subject' field contains 'New Comment'. The 'Type' dropdown is set to 'Problem', the 'Priority' dropdown is set to 'Medium', and the 'Status' dropdown is set to 'Open'. The 'Details' field is a large text area. Below the text area are two links: 'Attach a file' and 'Add a link'. At the bottom right are 'Submit' and 'Cancel' buttons.

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Figure 13-23. Adding comments

WB284 / VB2841.0

Notes:

Attributes view: Modeler's attachment

- Modeler's attachment is located in the Attachments tab in Attributes page.
- The attached file is sent to the publishing server with the published model.
- This file could not be removed from the publishing server but from the modeler.
- Only an authorized user can download the attached file.

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Figure 13-24. Attributes view: Modeler's attachment

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Notes:

Checkpoint

1. What is the purpose of using Publishing Server?

2. What is the difference between the “draft” and “released” artifacts?

3. What is the difference between Publishing Server’s attachment and Modeler’s attachment?

4. How can a user identify whether a comment or attachment has been added?

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Figure 13-25. Checkpoint

WB284 / VB2841.0

Notes:

Write your answers here:

- 1.
- 2.
- 3.
- 4.

Unit summary

Having completed this unit, you should be able to:

- Explain the purpose of the WebSphere Business Modeler Publishing Server
- Describe the WebSphere Business Space
- Model, integrate, and publish a project

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Figure 13-26. Unit summary

WB284 / VB2841.0

Notes:

Checkpoint solution

1. What is the purpose of using Publishing Server?
Publishing Server provides a way for people who do not have WebSphere Business Modeler to view and comment on business process models.
2. What is the difference between the “draft” and “released” artifacts?
Draft Artifacts displays projects that can be reviewed and commented. Released artifacts displays projects that are ready to be used as references.
3. What is the difference between Publishing Server’s attachment and Modeler’s attachment?
Modeler’s attachments are linked with the project in Modeler, whereas Publishing Server’s attachments are attached in Publishing Server during the review phase and not linked to the original Modeler project.
4. How can a user identify whether a comment or attachment has been added?
A paper clip symbol indicates that an attachment exists. An exclamation mark indicates that a comment exists.

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Figure 13-27. Checkpoint solution

WB284 / VB2841.0

Notes:

Exercise overview

In this exercise, you will:

- Log into the publishing server as reviewer
- Review draft projects
- Add comments
- Edit comment
- Export comments
- Add a response
- Log in as a viewer

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Figure 13-28. Exercise overview

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Notes:

Unit 14. Importing Microsoft Visio and existing model data

What this unit is about

This unit describes the import of Microsoft Visio and existing model data.

What you should be able to do

After completing this unit, you should be able to:

- Describe the process of importing from Microsoft Visio
- Explain the Visio import restrictions
- Import existing data from a Microsoft Excel spreadsheet
- Explain the process of importing existing business services and service objects

How you will check your progress

- Checkpoint
- Lab exercises

References

None

Unit objectives

After completing this unit, you should be able to:

- Describe the process of importing from Microsoft Visio
- Explain the Visio import restrictions
- Import existing data from a Microsoft Excel spreadsheet
- Explain the process of importing existing business services and service objects

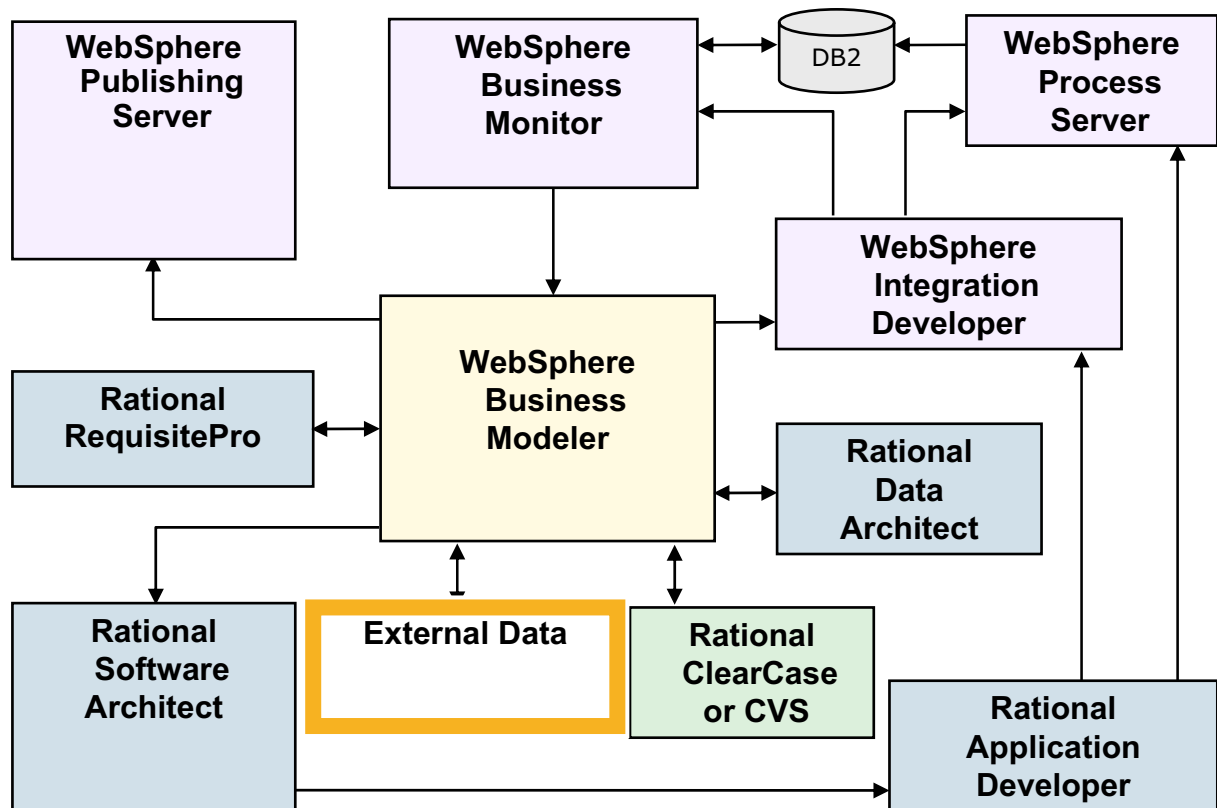
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Figure 14-1. Unit objectives

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Notes:

Importing existing data into Modeler



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Figure 14-2. Importing existing data into Modeler

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Notes:

Importing from Microsoft Visio

- Import shapes from Microsoft Visio files from Microsoft Visio 2002 or newer.
- These shapes can be used to create elements such as tasks and business items in Business Modeler.
- Predefined mappings include all shapes from the Basic Flowchart stencil, IDEF0 stencil, and SDL Diagram stencil.
- Customize your own mappings.

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Figure 14-3. Importing from Microsoft Visio

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Notes:

- IDEF0 (Integration Definition for Function Modeling) is a function modeling methodology for describing manufacturing functions.
- SDL – Specification and Description Language

Visio import restrictions

- While anything can be drawn in Visio without any constraints, Modeler is a modeling tool that creates valid processes.
- The following restrictions apply to importing Visio shapes:
 - Connections in Visio that are not attached to connection points on Visio shapes are not mapped to Modeler.
 - Be sure to use the "Glue to Connection Point" option in Visio.
 - Visio import always creates a single process without subprocesses.
 - In Modeler, each node must have a unique name.
 - If one or more shapes have the same name in Visio, the names will be differentiated by the addition of a number.

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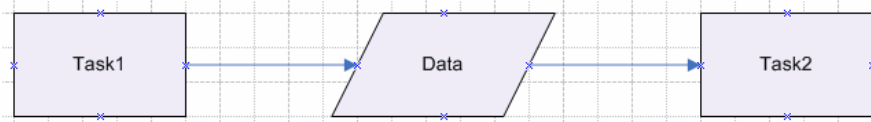
Figure 14-4. Visio import restrictions

WB284 / VB2841.0

Notes:

Mapping to business items (1 of 4)

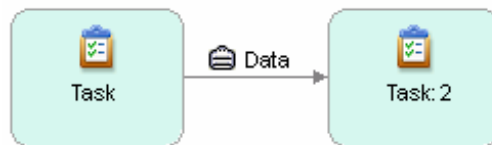
- One incoming and one outgoing connection
- The following shape to be mapped to a business item has both an incoming and an outgoing connection:



- If the Visio connection shape is set to map to a connection, the connection is created and a connection with data will be added.



- If the Visio connection shape is set to map to a connection with data, only the data connection is created.



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Figure 14-5. Mapping to business items (1 of 4)

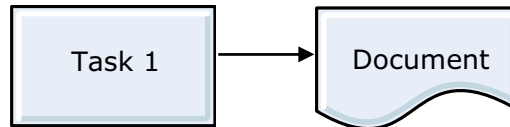
WB284 / VB2841.0

Notes:

- If the shape to be mapped to a business item has exactly one incoming connection and one outgoing connection, only a connection with data is created in Business Integration Modeler.
- If the Visio connection shape is set to map to a connection without data, the connection is created as usual and a connection with data is added as well.
- If the Visio connection shape is set to map to a connection with data, only the data connection is created.

Mapping to business items (2 of 4)

- One connection, either incoming or outgoing
- The following shape to be mapped to a business item has only an outgoing connection:



- The following diagram shows the result in Modeler:



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Figure 14-6. Mapping to business items (2 of 4)

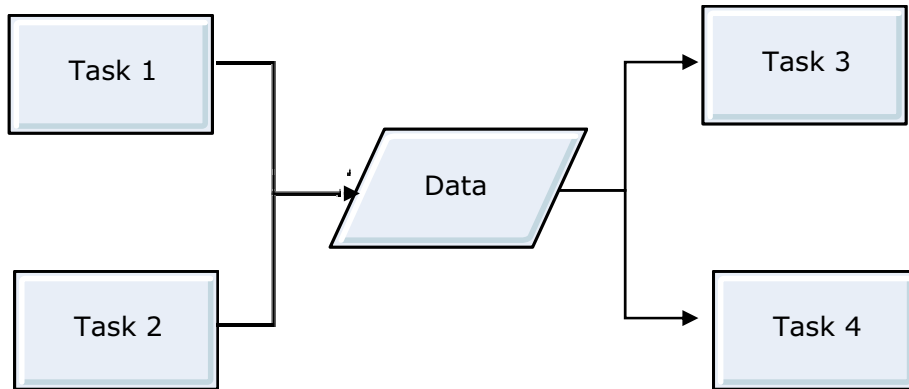
WB284 / VB2841.0

Notes:

If the shape to be mapped to a business item has only one connection, either incoming or outgoing, the shape is mapped to a local repository whose type is the name of the shape.

Mapping to business items (3 of 4)

- Complex connections
- There are two incoming connections into a Data shape and two outgoing connections:



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Figure 14-7. Mapping to business items (3 of 4)

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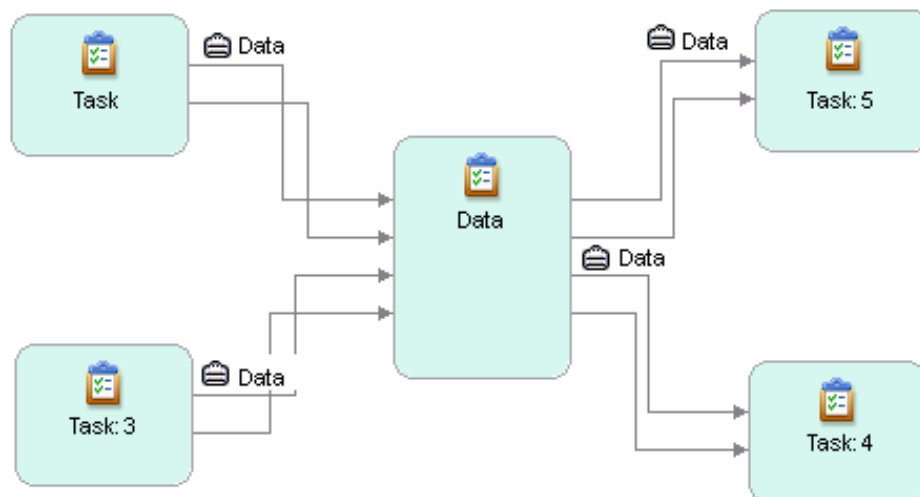
Notes:

An intermediate task is created in the following scenarios:

- The shape has multiple incoming and outgoing connections
- The shape is connected to another shape being mapped to a business item
- The shape is connected to a shape being mapped to a repository
- The shape is connected to a shape being mapped to a start, stop, or end node

Mapping to business items (4 of 4)

- Complex connections
- The following diagram shows that an intermediate task is created in Modeler:



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Figure 14-8. Mapping to business items (4 of 4)

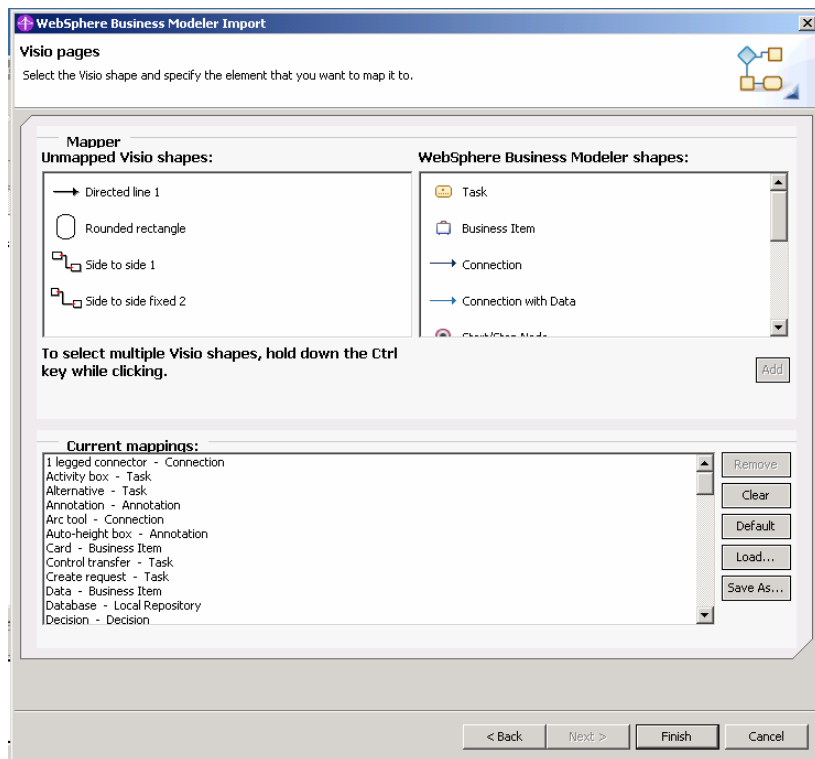
WB284 / VB2841.0

Notes:

The visio import models this as five tasks. The middle task is named Data and has two sets of incoming connections and two sets of outgoing connections. The data is of the same type as the data type of the repository.

XML file format

- XML file that contains the mapping between Microsoft Visio shapes and Business Modeler elements.
- The mapping file is in XML format and can be edited directly.
- To create the first mapping file, start the import wizard, select **Visio**, and on the mapping page, click **Save As** to store the current mappings in an XML file.



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Figure 14-9. XML file format

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Notes:

XML file format examples (1 of 2)

- Map a Visio shape called "Process" to "Task" element:

```
<map>
    <modelerShape>Task</modelerShape>
    <visioShape>Process</visioShape>
</map>
```

- More than one Visio shape maps to the same Modeler element, add the additional shapes to the same block:

```
<map>
    <modelerShape>Task</modelerShape>
    <visioShape>Process</visioShape>
    <visioShape>Predefined process</visioShape>
    <visioShape>Manual operation</visioShape>
    <visioShape>Loop limit</visioShape>
</map>
```

- All the blocks are contained within the top level <mapper> and </mapper> tags.

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Figure 14-10. XML file format examples (1 of 2)

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Notes:

XML file format examples (2 of 2)

- If no mapping should be defined for a particular Visio shape, specify the mapping of this Visio shape to “Nothing”:

```
<map>
  <modelerShape>Nothing</modelerShape>
  <visioShape>Title Block</visioShape>
</map>
```

- Any particular block of mapping in the mapping file will be ignored during import if any of the following applies:
 - More than one modelerShape is defined within `<map>` and `</map>`
 - No visioShape or no modelerShape is defined within `<map>` and `</map>`
 - The format is invalid.
- Any Visio shape not defined in the mapping file is mapped to the Business Integration Modeler “task” element during import.

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Figure 14-11. XML file format examples (2 of 2)

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Notes:

Import from Microsoft Excel

- Gather initial model data using a single Microsoft Excel spreadsheet and then import that data into the modeler project tree
- A sample spreadsheet provided with the product as a template includes a tab for each of the following
 - Business Item templates
 - Business Items
 - Individual resource definition templates
 - Individual resource definitions
 - Individual resources
 - Bulk resource definition templates
 - Bulk resource definitions
 - Bulk resources
 - Roles
 - Organization definition templates
 - Organization definitions
 - Organization units
 - Location definition templates
 - Location definitions
 - Locations
 - Global tasks
 - Business rules tasks
 - Human tasks
- Provides a tabular method of collecting and verifying project data before, or in parallel with, creating your initial process models.

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Figure 14-12. Import from Microsoft Excel

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Notes:

There are sample data template in excel format provided in the C:\IBM\WBModeler62\samples\spreadsheets directory.

Business services and business service objects

- Business services are model element representations of WSDL (Web Services Definition Language) files.
 - A collection of business service definitions that can include business service objects.
 - A specific set of business service operations that are used to perform related business functionality.
- Business service objects are model element representations of XSD (XML Schema Definition) files.
 - A collection of business service object definitions and business service object templates.
 - Business service object definition is similar to a business item and is used to define the business data that is required when a business service operation is invoked.
 - Business service object templates are similar to a business item template and abstractly define the business data that is required when a business service operation is invoked.
- Business services and business objects should have already been implemented.
- Modeler can import both types of files to add information related to the process model.

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Figure 14-13. Business services and business service objects

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Notes:

You can import business services and business service objects defined in WSDL files and business service objects defined in XML Schema Definition (XSD) files. You can add the operations and the business service object definitions defined in these files to process diagrams to integrate them with your process modeling.

Importing from WSDL and XSD files

- Business services and business service objects, which are defined in WebSphere Service Registry and Repository (WSRR) server, can be imported into Modeler.
- Once imported, the business services and business service objects can be used to model processes.
- Business service or business service object including their contents cannot be copied and pasted from one catalog to another.
- To move a business service or business service object, delete it from its current catalog in the Project Tree and then re-import it into the destination catalog.
- The business services and business service objects are visible only if the business services and business service objects filter is disabled.

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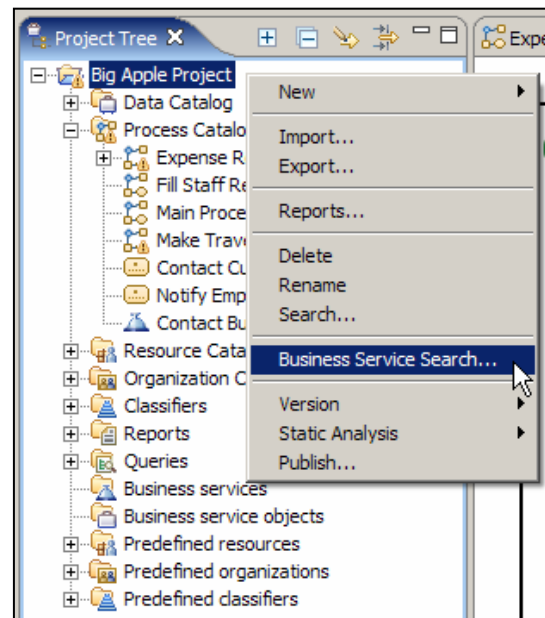
Figure 14-14. Importing from WSDL and XSD files

WB284 / VB2841.0

Notes:

Business service search

- Search for business services and business service objects in a WSRR location and import them into Modeler.
- Specify whether searching for business services defined in WSDL files or business service objects defined in XSD files.
- For business services (WSDL files), the search checks the name of the file and the names and descriptions of the portTypes and operations defined in the file.
- For business service objects (XSD files), the search checks the name of the file and the names and descriptions of the simpleTypes and complexTypes defined in the file.



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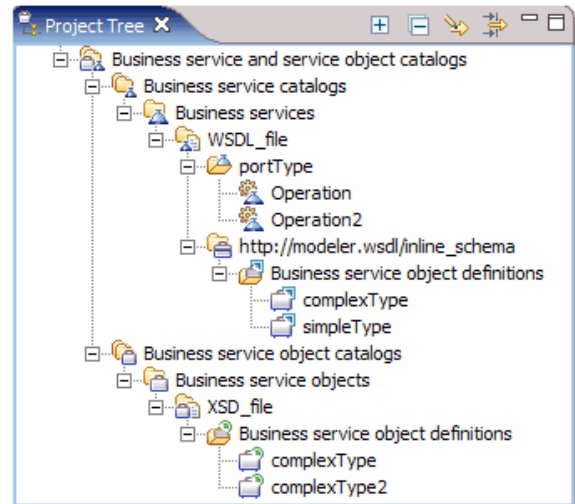
Figure 14-15. Business service search

WB284 / VB2841.0

Notes:

Business services in Project Tree

- Once imported, business services and business service objects will be displayed in project tree.
- Apply filters to control how the Project Tree view displays.
 - Business services and business service objects
 - Controls the topmost folder and the catalog folders
 - Business services and business service objects content
 - File names and structures defined in the WSDL and XSD files
 - Inline business service objects
 - Inline schema types for the business services



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Figure 14-16. Business services in Project Tree

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Notes:

If you only want to see the business service operations and the business service object ComplexTypes without seeing which WSDL or XSD files contain them, you would clear the check box for the Business services and business service objects filter (which is required if you want to see any business service content) and select the check boxes for the Business services and business service objects content and the Inline business service objects filters.

To reveal the most business service content in the Project Tree view, ensure the following filters for the Project Tree view are disabled (do not have check marks):

- Main catalogs
- Element categories within a catalog
- Business services and business service objects
- Business services and business service objects content
- Inline business service objects

Disabling these filters reveals the most business service content in the Project Tree view.

WSDL/XSD import capability

- Import existing WSDL/XSD elements and present them as Business Services and Service Objects.
 - Only the constructs in the WSDL that are relevant to Modeler will be presented, such as WSDL PortType and Operation.
 - Other constructs will not be presented but will be preserved upon export, such as WSDL Services and Bindings.
 - Imported WSDL/XSD is read-only, with limited editing on resource and simulation related attributes.
- Import multiple WSDL/XSD files located in different folders in a single import operation.
- Preserve the contents of the WSDL and XSD upon export to WebSphere Process Server.
 - All original contents will be preserved, except the file reference location (as per import, include, redefine) will be updated according to the target export location.

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Figure 14-17. WSDL/XSD import capability

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Notes:

Business Services and Service Objects structure

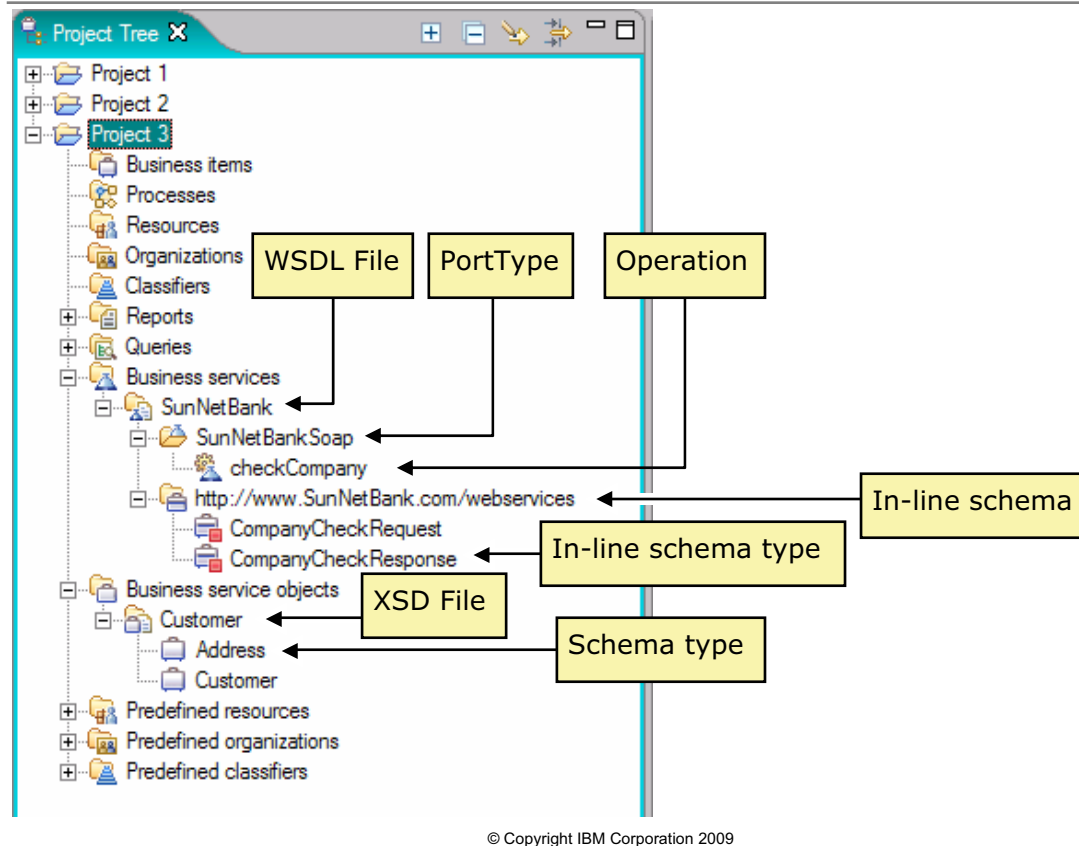
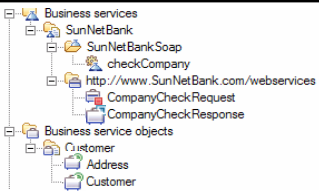
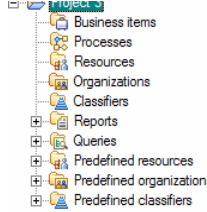
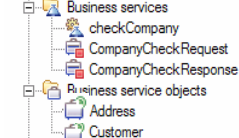
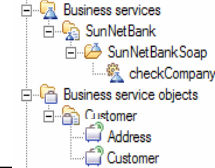


Figure 14-18. Business Services and Service Objects structure

WB284 / VB2841.0

Notes:

Project tree filters

Filter	Description	Example
No filter		
Business services and business service objects	Controls whether the topmost business services and business service objects folder and the catalog folders within it are visible Note: If you apply this filter, the next two filters are irrelevant	
Business services and business service objects content	Controls whether the file names and structures defined within the WSDL and XSD files are visible.	
Inline business service objects	Controls whether the inline schema types are visible within the business services	

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Figure 14-19. Project tree filters

WB284 / VB2841.0

Notes:

XML Schema Definition import

- The following types of elements and attributes can be imported from XML Schema Definition (XSD) files into Modeler:
 - Business item templates
 - Business items
 - Notification templates
 - Notifications
 - Resource definition templates
 - Resource definitions
 - Organization definition templates
 - Organization definitions

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Figure 14-20. XML Schema Definition import

WB284 / VB2841.0

Notes:

Delimited text import

- Expedites process model development
 - Import at one time
- The following elements can be created by importing delimited text files in the correct format:
 - Business item templates
 - Business items
 - Resource definition templates
 - Resource definitions
 - Resources
 - Roles
 - Organization definition templates
 - Organization definitions
 - Organization units
 - Global tasks

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Figure 14-21. Delimited text import

WB284 / VB2841.0

Notes:

Delimited text attributes that are not supported

- The following attributes are not supported:
 - Expressions (used in rules and in default values)
 - Scope dimensions (used in roles)
 - Timetables (used in resources for costs and availability)
 - Preconditions
 - Advanced input logic (constraints and correlations)
 - Advanced output logic
 - Inputs that belong to more than one input criteria
 - Outputs that belong to more than one output criteria
 - Resources assigned to tasks
 - Organizations assigned to tasks

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Figure 14-22. Delimited text attributes that are not supported

WB284 / VB2841.0

Notes:

Checkpoint

1. What are some restrictions when importing Visio shapes into WebSphere Business Modeler?

2. WebSphere Business Modeler supports which version of MS Visio does the Modeler support?

3. What are the differences between Business services and business service objects?

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Figure 14-23. Checkpoint

WB284 / VB2841.0

Notes:

Write your answers here:

- 1.
- 2.
- 3.

Unit summary

Having completed this unit, you should be able to:

- Describe the process of importing from Microsoft Visio
- Explain the Visio import restrictions
- Import existing data from a Microsoft Excel spreadsheet
- Explain the process of importing existing business services and service objects

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Figure 14-24. Unit summary

WB284 / VB2841.0

Notes:

Checkpoint solution

1. What are some restrictions when importing Visio shapes into WebSphere Business Modeler?
Connections in Visio that are not attached to connection points on Visio shapes are not mapped to Modeler. Be sure to use the <glue to connection point> option in Visio. Visio import always creates a single process without subprocesses. In Modeler, each node must have a unique name. If one or more shapes have the same name in Visio, the names will be differentiated by the addition of a number.
2. WebSphere Business Modeler supports which version of MS Visio does the Modeler support?
2002 or newer
3. What are the differences between Business services and business service objects?
Business services are model element representations of WSDL (Web Services Definition Language) files while Business service objects are model element representations of XSD (XML Schema Definition) files.

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Figure 14-25. Checkpoint solution

WB284 / VB2841.0

Notes:

Exercise overview

In this exercise, you will:

- Import a model from Microsoft Visio
- Map unrecognized Visio objects to Modeler objects
- Update model in Modeler to fix inconsistencies in the conversion of the Visio model

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Figure 14-26. Exercise overview

WB284 / VB2841.0

Notes:

Unit 15. Course review

What this unit is about

This unit describes the Modeler course summary.

What you should be able to do

After completing this unit, you should be able to:

- Explain the key concepts that were covered in this course

How you will check your progress

- Accountability:
- Checkpoint
- Lab exercises

References

None

Unit objectives

After completing this unit, you should be able to:

- Explain the key concepts that were covered in this course

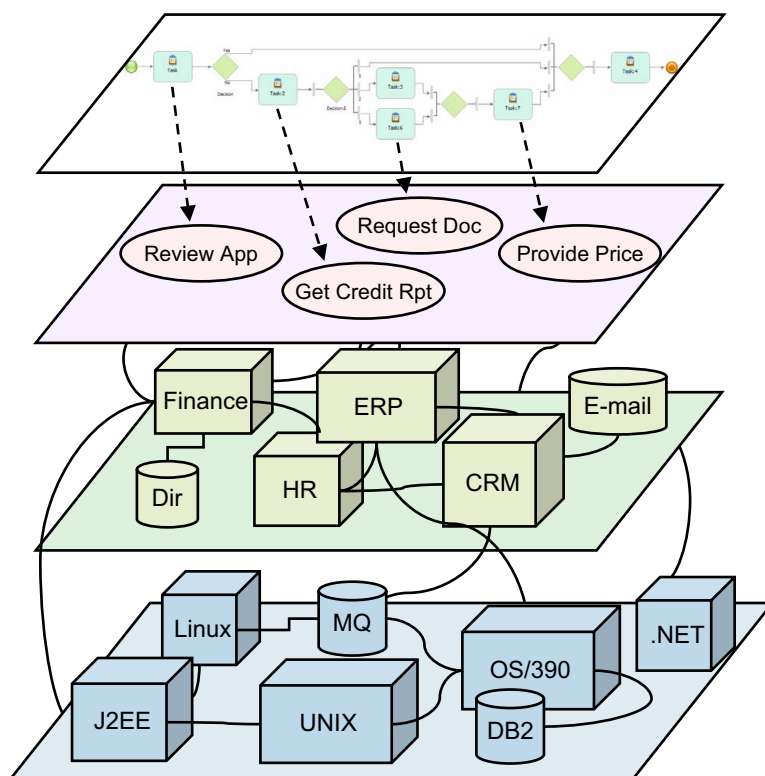
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Figure 15-1. Unit objectives

WB284 / VB2841.0

Notes:

The process drives development through the use of business services



- **Business process layer**
 - Cross functional end-to-end loan process
 - Manual tasks
 - Human tasks
 - Business rules tasks
 - Service calling tasks
- **Service layer**
 - Business Services
 - Dynamic Selection Services
- **Application layer**
 - Applications, components, software
- **Technology layer**
 - Hardware, network
 - Connect J2EE to .NET

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Figure 15-2. The process drives development through the use of business services

WB284 / VB2841.0

Notes:

Purposes of business process modeling

- Business process models serve many purposes, including:
 - Documenting existing procedures
 - Determining requirements for staff, systems, and facilities
 - Planning changes to existing processes and systems
 - Testing and analyzing existing and proposed processes
 - Identifying defects in your processes (bottlenecks, and so forth)
 - Process model data can support other business applications that rely on this information:
 - Workflow, policy and procedure documentation, application development
- Models visually represent an organization's current workflow (an as-is model) and allow what-if scenarios for future (to-be) designs.
- Effective models need a well designed modeling structure.
 - To understand what it takes to complete the activities
 - Ensures consistent and complete representation of information
 - Including normal operations, alternatives, and exceptions to standards

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Figure 15-3. Purposes of business process modeling

WB284 / VB2841.0

Notes:

Capabilities of WebSphere Business Modeler

- WebSphere Business Modeler capabilities are central to the understanding of the business process model.
 - **Modeling** allows you to create a graphic diagram or a business process plus all the related process information.
 - **Simulation** supports the time and cost analysis of a process under real-time conditions.
 - **Analysis** provides a number of tools to extract details from the model and from simulation results.
 - **Reporting** creates several documents that can be used to communicate the results of process documentation and analysis.
 - **Code generation** generates code that can be used as a starting point for process automation.

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Figure 15-4. Capabilities of WebSphere Business Modeler

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Notes:

Modeling modes in WebSphere Business Modeler

- Business modeling modes for process mapping:
 - Basic business modeling
 - Advanced business modeling
- Business modeling modes that apply validation rules:
 - WebSphere Business Integration Server Foundation
 - WebSphere MQ Workflow
 - WebSphere Process Server
 - FileNet Business Process Manager
 - WebSphere Business Services Fabric
- When switching modes, the following changes occur:
 - Some options are not available
 - A previously valid model may no longer be valid because of additional validation rules
- No information is lost when switching modes



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Figure 15-5. Modeling modes in WebSphere Business Modeler

WB284 / VB2841.0

Notes:

Four-pane layout

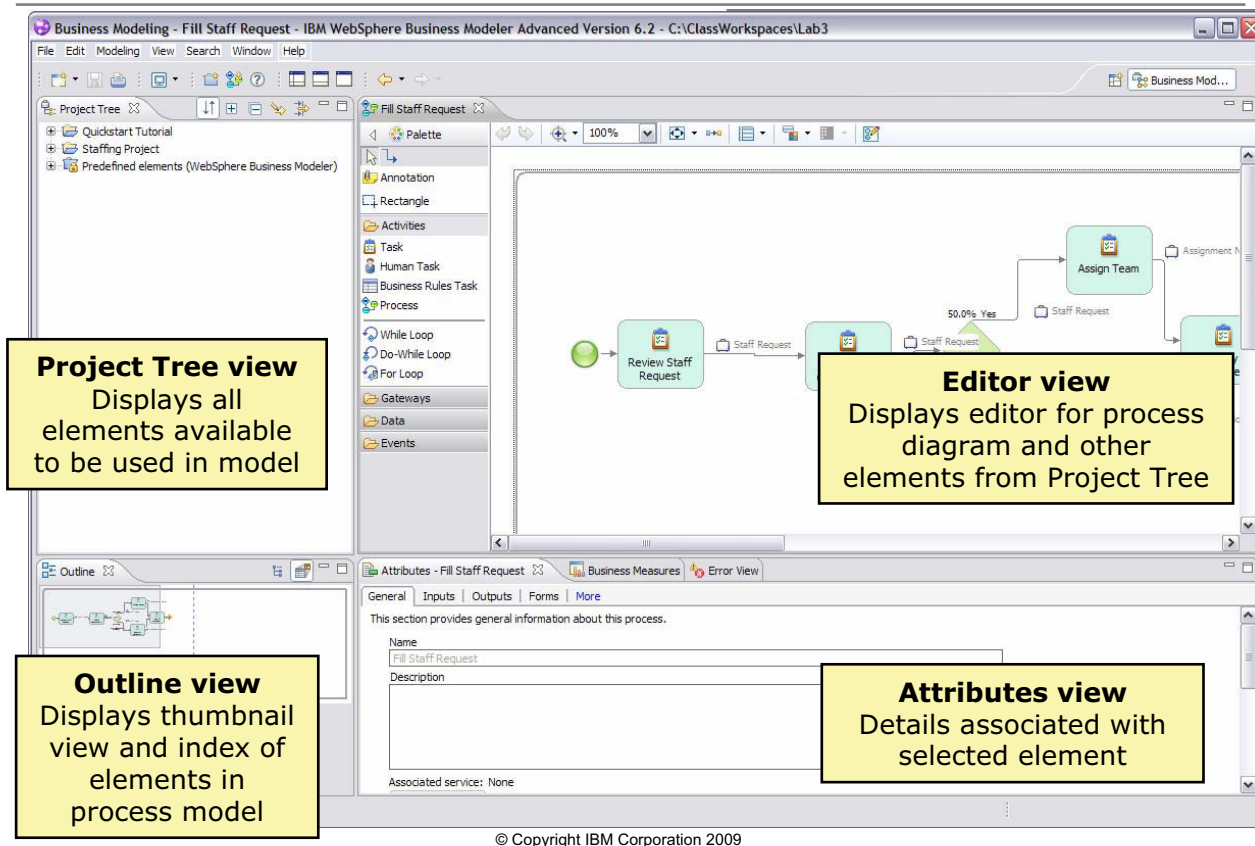


Figure 15-6. Four-pane layout

WB284 / VB2841.0

Notes:

Primary modeling elements used in Modeler

Category	Modeler element	Description
Activity Represents the work being performed	Task	Basic unit of work
	Process	Sequence of activities
	Service	Process external to the organization
Data Represents storage area and data map	Repository	Location where business items are stored
	Map	Transforms data from one structure to another
Gateway Determines the process flow	Simple decision	Routes inputs to one of two paths
	Multiple-choice decision	Routes inputs to one of several paths
	Fork	Splits a path into two or more parallel paths
	Merge	Combines two or more paths after an exclusive decision
	Join	Combines two or more parallel paths
	Connection	Links two elements to represent the flow
Event Determines the control flow	Start	Marks the beginning of a process not initiated by another process
	Terminate (Required)	Marks the termination of a process
	End	Marks the end of a path in a process

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Figure 15-7. Primary modeling elements used in Modeler

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Notes:

Adding relevant information to the diagram

- A model includes a diagram with additional relevant information
 - Information on what is received, worked on, and produced
 - Business items
 - Information about who performs the work and when:
 - Resources
 - Roles
 - Timetables
 - Information on how the company is organized:
 - Organization unit
 - Location
 - Structure
 - Information on grouping related information for analysis:
 - Classifiers
- Information elements are defined and edited using editors opened in the project tree

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Figure 15-8. Adding relevant information to the diagram

WB284 / VB2841.0

Notes:

Additional elements

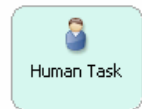
- These elements serve a specific purpose and make the model more realistic.
- Special purpose tasks
 - Timer
 - Initiates a flow at a specified point in time
 - Broadcaster
 - Publishes a notification
 - Receiver
 - Listens for notifications
 - Observer
 - Watches the repository contents

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Figure 15-9. Additional elements

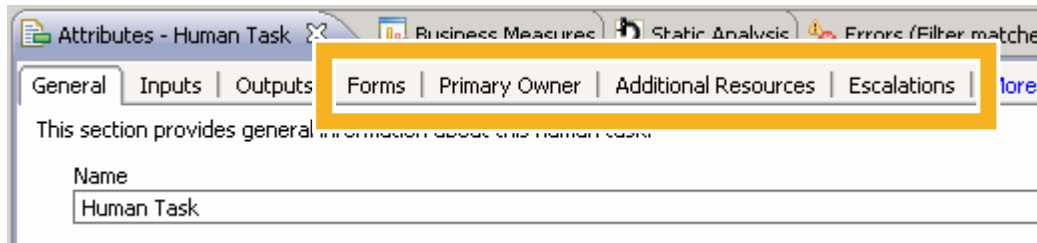
WB284 / VB2841.0

Notes:



Human task (1 of 2)

- Specialized task a system assigns to human for completion
 - Used to visually identify and document activities that must be performed by a person
- Can be global or local
 - Local task to local human task conversion
 - Local human task to global human task conversion
- All other normal task attributes
- Treated as a normal task during simulation
 - For process modeling and simulation purposes, you can specify the related cost, revenue, duration, additional resources, organizations, and classifiers



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Figure 15-10. Human task (1 of 2)

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Notes:

Human task (2 of 2)

- Associate electronic forms that are required for completion
 - Forms integrate the development of the process and the associated computer interface
 - Based on IBM Lotus Forms, Forms Designer, and Forms Viewer
 - Created or imported forms can be reused by other human tasks
 - Forms are exported to WebSphere Integration Developer
- Primary owner
 - Assign a particular role or resource to work on the task
 - Ability to define a criterion (known as a *Verb* in WebSphere Integration Developer) that determines the resource to be allocated as a primary owner
- Escalation
 - Define actions that should take place if some aspect of the human task does not complete on time
- Can have only one input criterion (set of inputs) and one output criterion (set of outputs)

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Figure 15-11. Human task (2 of 2)

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Notes:



Business rules task (1 of 2)

- Specialized task
- Represents activities to which business rules apply
- Can be global (reusable) or local (process-specific)
- Used to model complex decisions and to visually identify places in your process model where business policies and practices apply
- Simplifies modeling when a business decision takes the form of a series of if-then statements or a large number of unstructured sentences
- To define rule conditions and actions, use Intermediate, Advanced, or WebSphere Process Server modeling mode

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Figure 15-12. Business rules task (1 of 2)

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Notes:

Business rules task (2 of 2)

- Business rule
 - Simple if-then logic
 - If a condition evaluates to true, then actions are invoked
- Business rule template
 - Create a rule template to reuse rule conditions and actions, or allow their parameter values to be changed in an application at run time

Attributes - Business Rules Task Business Meas

General | Cost and Revenue | Duration | Inputs | Output | **Business Rules** | sources | Organizations | Classifiers | More

Business rules

Identify the high-level business rules associated with the task.

Business rule	Description

Add Edit... Remove

Scheduling

Specify which business rule should be used by default and which business rules are in effect on specific dates. Dates are set in local time zones, so the scheduling of business rules in an application at runtime occurs in the local time zone.

Default business rule

Scheduled business rules

Start date	End date	Business rule

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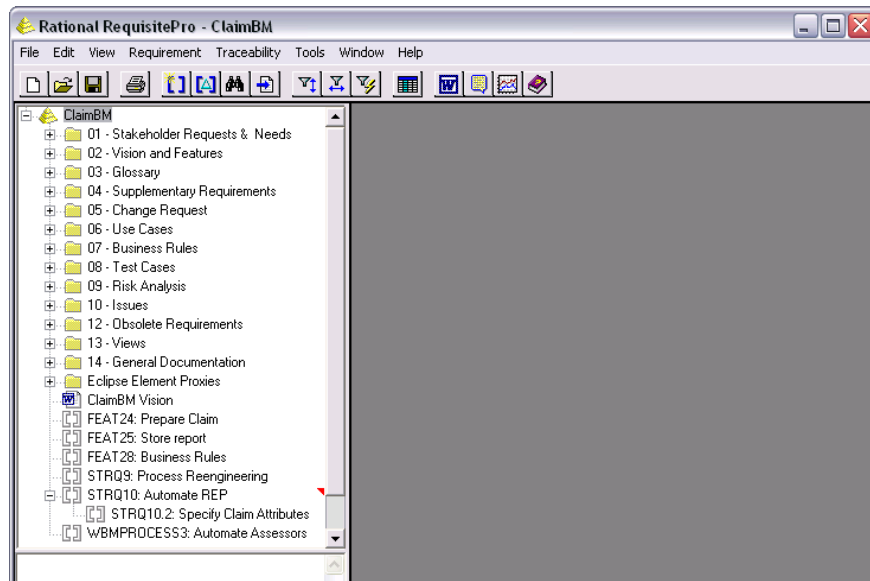
Figure 15-13. Business rules task (2 of 2)

WB284 / VB2841.0

Notes:

Benefits of using Rational RequisitePro

- Single, centralized requirement collection point for all requirements.
 - Provides a unified interface with which to analyze and compare requirements
- Trace requirements to line items
- Share more information with your development teams about the requirements



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Figure 15-14. Benefits of using Rational RequisitePro

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Notes:

Validation fundamentals

- **Syntax:** Model constructs are correct and valid.
 - Is the model properly constructed to provide valid results in the Modeler?
- **Semantics:** The meaning of the model is correct — task attributes, organizations, roles, sequence of tasks.
 - Does the model created reflect what is occurring in the business, or what could occur in the business?
 - Is it thorough; was any data left out?
- **Sense:** The model is business relevant; cost (time and money) assumptions and their causes are valid.
 - Does it make sense that the model and resulting analysis show on average that it takes three weeks to process a claim when company metrics would suggest one week?
- **Standards:** The model adheres to the defined modeling standards — constructs, naming conventions.
 - Will the model be able to be understood by someone who was not involved with its creation?

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Figure 15-15. Validation fundamentals

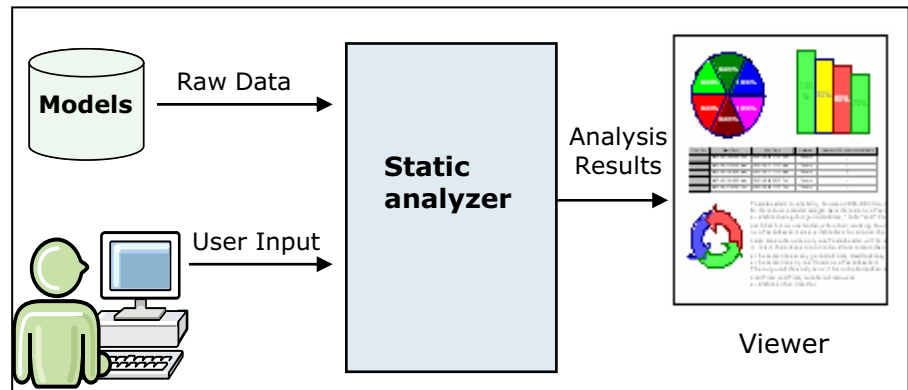
WB284 / VB2841.0

Notes:

Static analysis overview

- Gives business users important information computed from the raw data in the models:

- Cost
- Time
- Performance
- Improvement capabilities
- Process flow validity
- Resources leveling
- Qualified resources to play important roles



- Inputs are raw model data and parameters entered by the user.
- Results are viewed using either a tabular or graphical viewer.
 - Results can be printed using predefined report templates.

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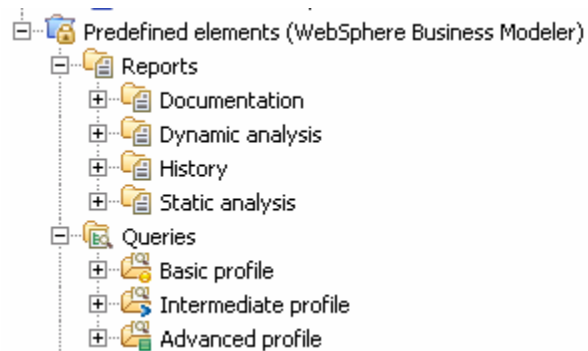
Figure 15-16. Static analysis overview

WB284 / VB2841.0

Notes:

Querying, reporting, and printing

- Queries enable you to extract and view selected information on elements of your models
- Reports are a formatted presentation of information relating to a model or to the results of analyzing a process simulation.
- Reports can be viewed, printed, or exported
- Reports versus queries
 - All predefined queries have a corresponding predefined report based on the query.
 - Use the query to view the information.
 - Use the report if you want to format, print, or save the information
- Diagrams can also be printed or exported



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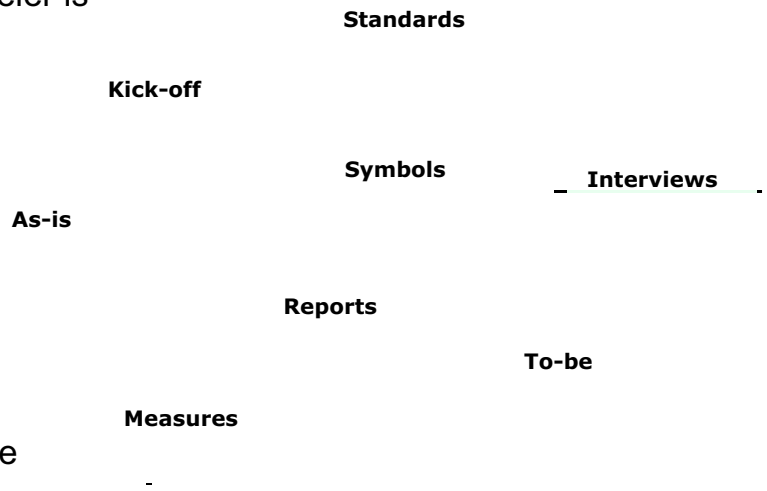
Figure 15-17. Querying, reporting, and printing

WB284 / VB2841.0

Notes:

Defining standards and agreeing to best practices

- Your stakeholders will also help you define the standards and gain the agreement required to maintain best practices:
 - WebSphere Business Modeler is methodology independent, but successful modeling efforts require a level of standardization and a defined approach.
 - Process modeling standards:
 - It is necessary to define the use, creation, and implementation of the symbols, definitions, and data descriptions.



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Figure 15-18. Defining standards and agreeing to best practices

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Notes:

Need for project versioning

- To distribute the effort of modeling or modifying an entire project among multiple team members.
 - Members can view and post project artifacts to a version control system.
 - Check out processes and create their local versions.
 - Submit their changes back when done
- Modeler can use IBM ClearCase or Concurrent Versions System (CVS) to access a version control repository on a server.
 - Maintain secured version control of project data in the repository
 - Each modification of a project element (such as process, resource, or catalog) stored as a distinct version of the original item
 - Post business modeling projects to share, view, make copies of the shared projects, and save the copies to their local machine
 - View the history of project element modifications
 - Compare two or more versions of the same item

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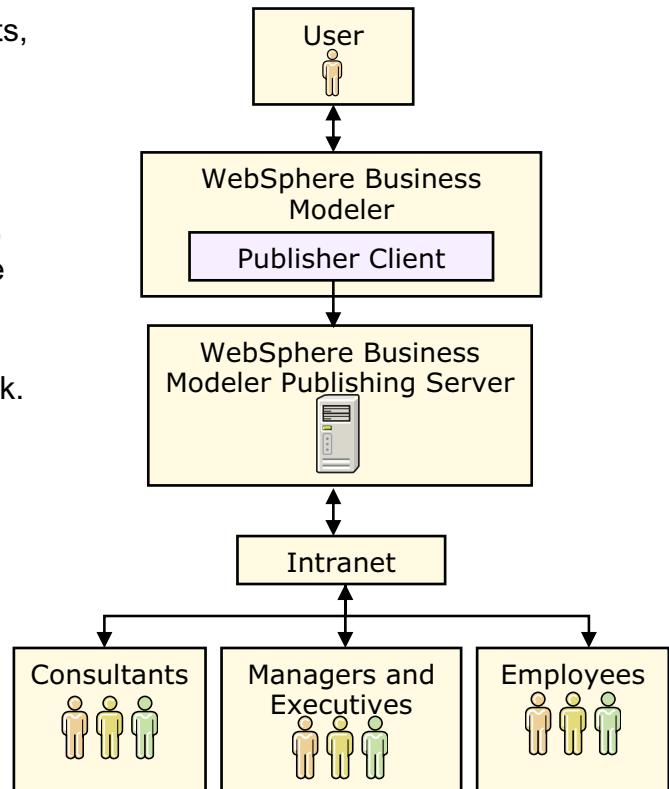
Figure 15-19. Need for project versioning

WB284 / VB2841.0

Notes:

How users interact with publishing server

- Users may include business analysts, consultants, or process engineers.
- Reviewers may include executives, consultants, employees, partners, and even customers.
- Reviewers validate the data used to create the process model or provide feedback.
- Users make adjustments to the process based on reviewer feedback.
- Publish a single model element, a complete catalog, or the entire process model project.
- The reviewers can then comment on the updated process model or respond to comments.
- This creates an environment for continuous improvement of the process model.



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Figure 15-20. How users interact with publishing server

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Notes:

Importing from Microsoft Visio

- Import shapes from Microsoft Visio files from Microsoft Visio 2002 or newer.
- These shapes can be used to create elements such as tasks and business items in Business Modeler.
- Predefined mappings include all shapes from the Basic Flowchart stencil, IDEF0 stencil, and SDL Diagram stencil.
- Customize your own mappings.

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Figure 15-21. Importing from Microsoft Visio

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Notes:

Modeler's relationship with other products covered in this course

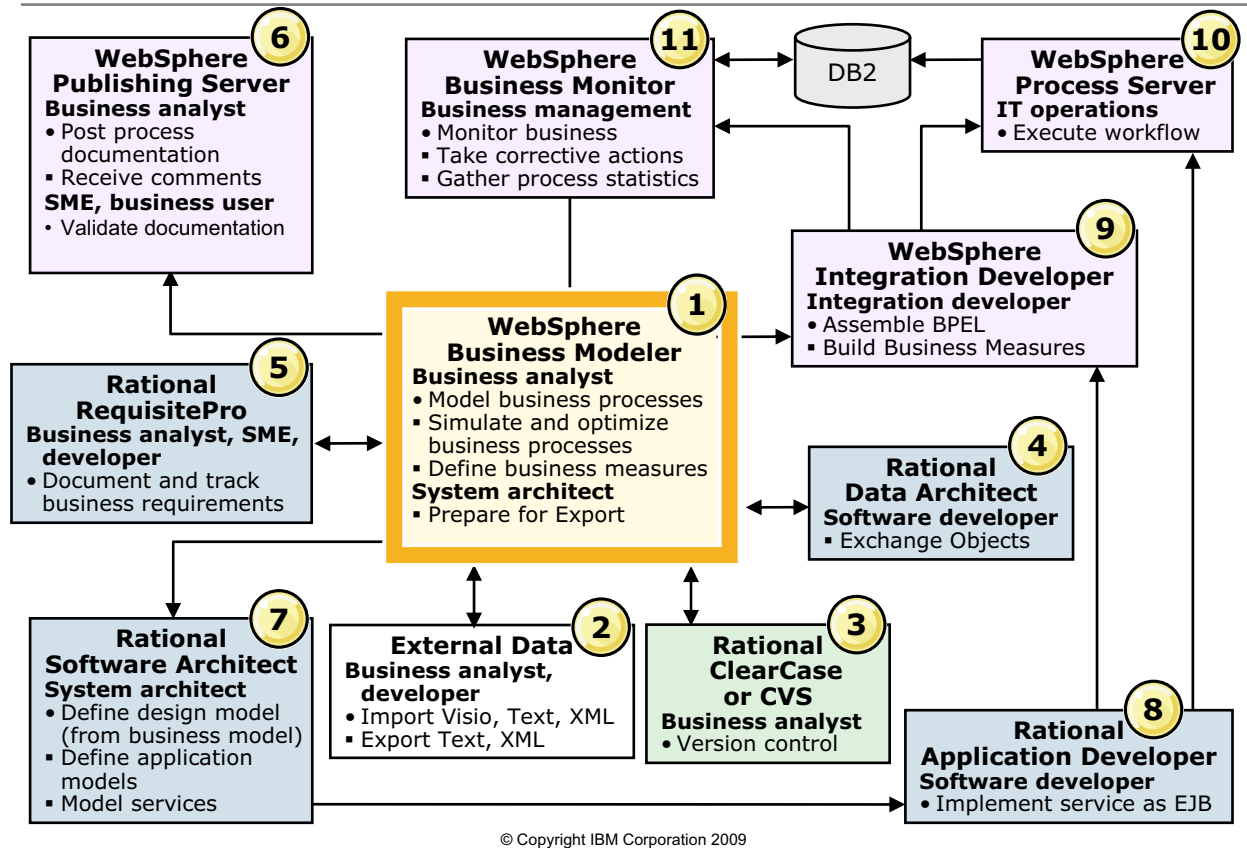


Figure 15-22. Modeler's relationship with other products covered in this course

WB284 / VB2841.0

Notes:

Additional materials in your class image

- Clean lab workspaces
 - Lab workspaces that you can re-do your lab exercises
- Industry samples
 - Banking, Accounting and reporting, Human resources, Insurance, retails, product and services
- Six Sigma classifiers
 - Lean sigma classifiers
- Simple samples
 - Bank, medical, retail, telecommunication and simulation scenarios
- Spreadsheets
 - Data templates for business items

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Figure 15-23. Additional materials in your class image

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Notes:

Unit summary

Having completed this unit, you should be able to:

- Explain the key concepts that were covered in this course

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Figure 15-24. Unit summary

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Notes:

Unit 16. Course summary

What this unit is about

This unit describes the course summary.

What you should be able to do

After completing this unit, you should be able to:

- Explain how the course met its learning objectives
- Submit your evaluation of the class
- Identify other WebSphere Education courses related to this topic
- Access the WebSphere Education Web site
- Locate appropriate resources for further study

How you will check your progress

- Checkpoint
- Lab exercises

References

None

Unit objectives

After completing this unit, you should be able to:

- Explain how the course met its learning objectives
- Submit your evaluation of the class
- Identify other WebSphere Education courses related to this topic
- Access the WebSphere Education Web site
- Locate appropriate resources for further study

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Figure 16-1. Unit objectives

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Notes:

Course learning objectives

- Create a business process diagram using the process editor
- Create definitions and structures for modeling elements
- Link requirements with Rational RequisitePro
- Validate a model and perform static analysis
- Identify project management capabilities and methodologies
- Create a process model based on a business scenario
- Perform team collaboration support for version control
- Perform team collaboration using WebSphere Business Modeler Publishing Server
- Import Visio diagrams to WebSphere Business Modeler
- Set up and run a simulation
- Conduct dynamic analysis
- Identify methods for process improvement
- Create custom queries and reports
- Understand the purpose of business measures
- Export projects from WebSphere Business Modeler

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Figure 16-2. Course learning objectives

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Notes:

Class evaluation

- Use the IBM Training Web site:
osart.atlanta.ibm.com

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Figure 16-3. Class evaluation

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Notes:

To learn more on this subject

- WebSphere Education Web site:
www.ibm.com/websphere/education
- E-mail address for more information:
websphere_skills@us.ibm.com
- Review the Education CD and documentation in your class materials
- Courses you should consider:
 - Developing Business Integration Solutions using IBM WebSphere Process Server - I
 - Developing Business Integration Solutions using IBM WebSphere Process Server - II
 - IBM WebSphere Business Monitor: Implementation and Administration
 - Implementing IBM WebSphere Business Services Fabric
 - IBM WebSphere Service Registry and Repository for Application Developers

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Figure 16-4. To learn more on this subject

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Notes:

References

- Training Path > WebSphere Business Integration
 - <http://www.ibm.com/software/sw-training>
- Business Process Management Powered By Smart SOA
 - <http://www.ibm.com/software/info/bpm>
- IBM's BPM Suite
 - <http://www.ibm.com/software/info/bpm/offerings.html>

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Figure 16-5. References

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Notes:

Unit summary

Having completed this unit, you should be able to:

- Explain how the course met its learning objectives
- Submit your evaluation of the class
- Identify other WebSphere Education courses related to this topic
- Access the WebSphere Education Web site
- Locate appropriate resources for further study

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Figure 16-6. Unit summary

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Notes:

Appendix A. Interactive process design

What this unit is about

This unit describes the interactive process design.

What you should be able to do

After completing this unit, you should be able to:

- Explain the key concepts of interactive process design

How you will check your progress

- None

References

None

Unit objectives

After completing this unit, you should be able to:

- Explain the key concepts of interactive process design

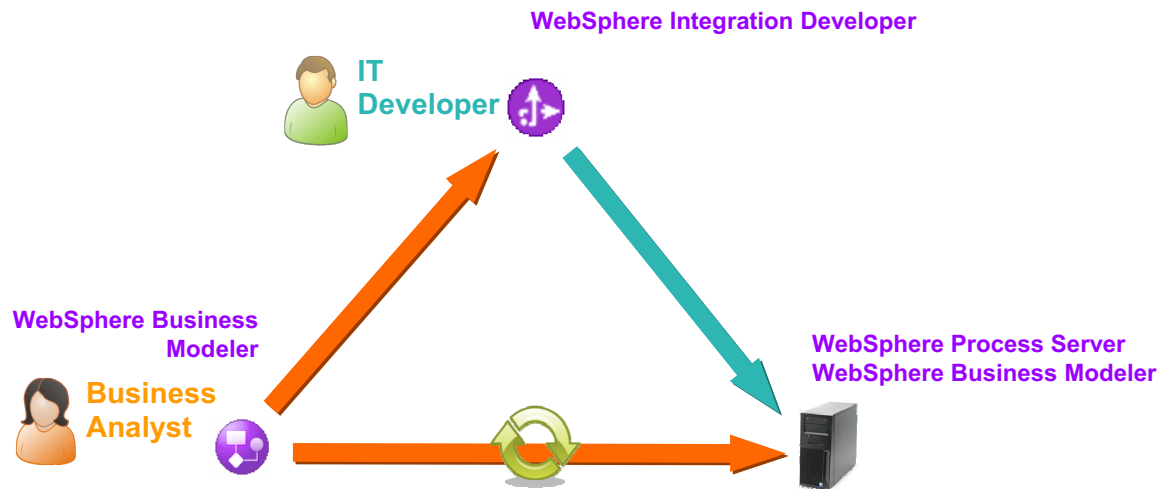
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Figure A-1. Unit objectives

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Notes:

What is interactive process design?



IPD enables *business users* directly from modeling to deployment on the **WebSphere Process Server** and **WebSphere Business Monitor** runtimes

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Figure A-2. What is interactive process design?

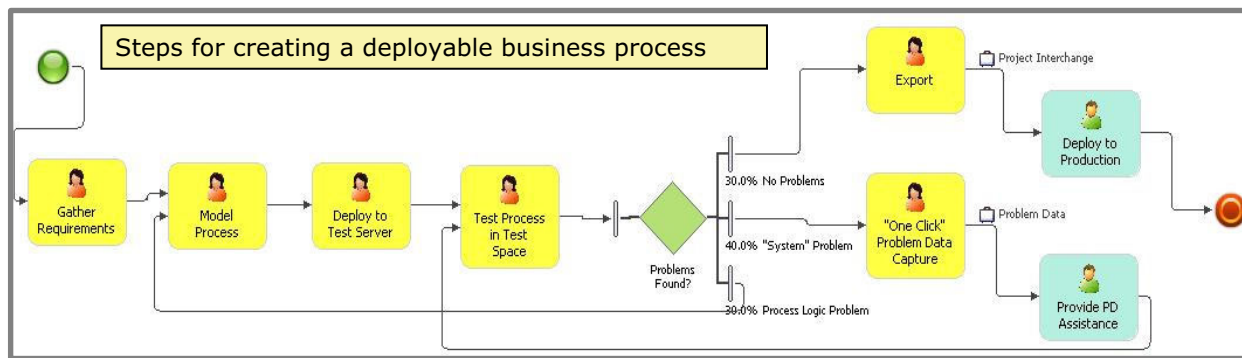
WB284 / VB2841.0

Notes:

Interactive process design (IPD) in the WebSphere BPM v6.2 products is designed to empower Business Analysts to quickly and easily create simple human workflows within the WebSphere Business Modeler tool and to test them on a running test server environment. These simple processes encompass activities that are very familiar to the business users that model, perform, and design the process. These are generally human-centric processes that involve a small team of people working together, leveraging their skills to execute tasks in the process. The process to implement does not require complex integration, and thus can be fully defined by business analysts working in Modeler. Interactive process design allows businesses to get processes up and running quickly so that work can be performed more efficiently and managed more accurately.

Purposes of business process modeling

- Enhances productivity for business analysts and IT developers
 - Business analysts work at the “process level”
 - IT developers work at the “business service level” defining services for use within the process
 - Facilitates parallel work without costly synchronization of business and IT models
- Accelerates iterative design
 - Shorter path between requirements and executable process
 - Business analyst defines and tests process using Modeler



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Figure A-3. Purposes of business process modeling

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Notes:

Process activates that can be deployed to a test server environment directly from Modeler include human tasks, business rules, Web services (these Web services must be held in WebSphere Service Registry and Repository or defined in a single WSDL file, including endpoint information), maps, and sub-processes (both global and local). Any measurement or KPI that can be fully defined in Modeler can also be deployed.

Roles and responsibilities

Business analyst 	IT developer 
	Configures servers 
	Configures development environment 
	Creates and Develops Services  
Imports services  	
Models the process 	
Deploys and tests   	
	Solves deployment and runtime problems   
Uses the process as is or after it is deployed to production  	Optionally deploys the process to productions   

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Figure A-4. Roles and responsibilities

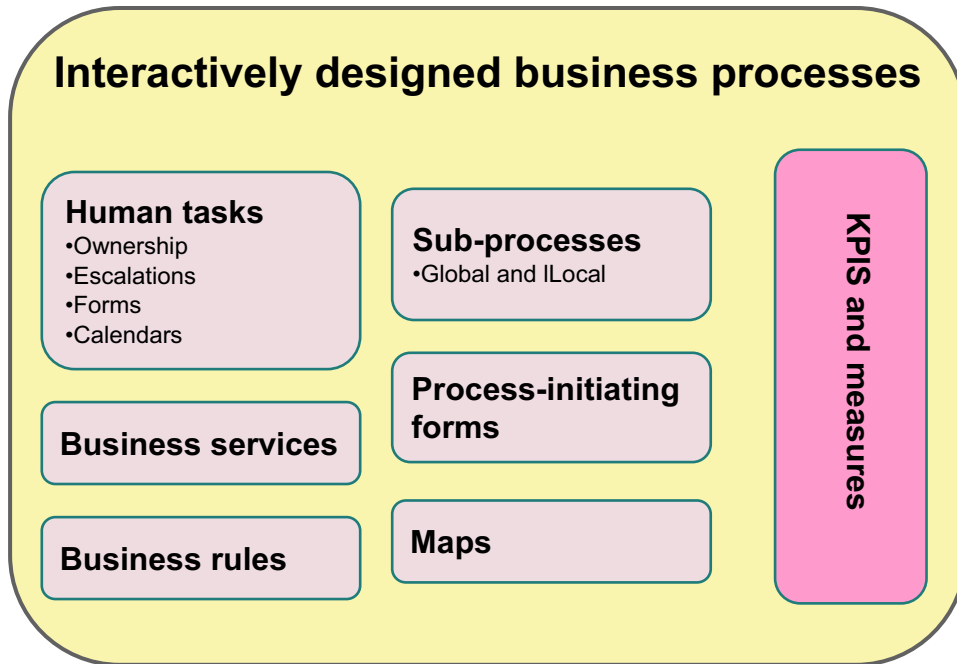
WB284 / VB2841.0

Notes:

The process modeling and design work is performed by business analysts, with support provided by IT developers

What's included in interactive process design?

- Faster time to value for human workflow on WebSphere Process Server



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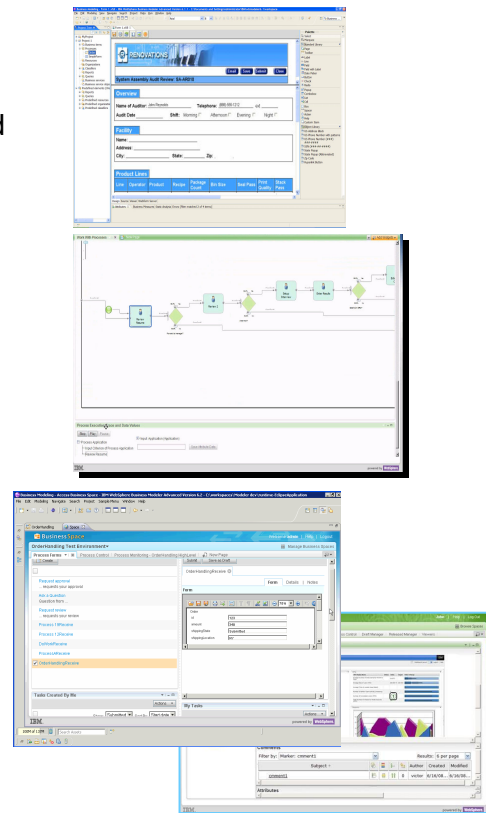
Figure A-5. What's included in interactive process design?

WB284 / VB2841.0

Notes:

Business analysts use WebSphere Business Modeler

- Model
 - Business process, organizations, resources, roles
 - Leverage existing business services from WebSphere Services Registry and Repository and from WebSphere Integration Developer
 - Human workflows with forms for user interaction
 - Staff assignments
 - Business rules
 - Leverage predefined KPIs
- Simulate and Analyze
 - ROI analysis
 - Cost, time, resource analysis
- Storyboard
 - Capture and playback the flow and user interaction
- Collaborate and Team
 - Share with business stakeholders
 - Manage assets in BPM repository
- Realize
 - Deploy and Test the business process on WebSphere Process Server and Monitor sandbox



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Figure A-6. Business analysts use WebSphere Business Modeler

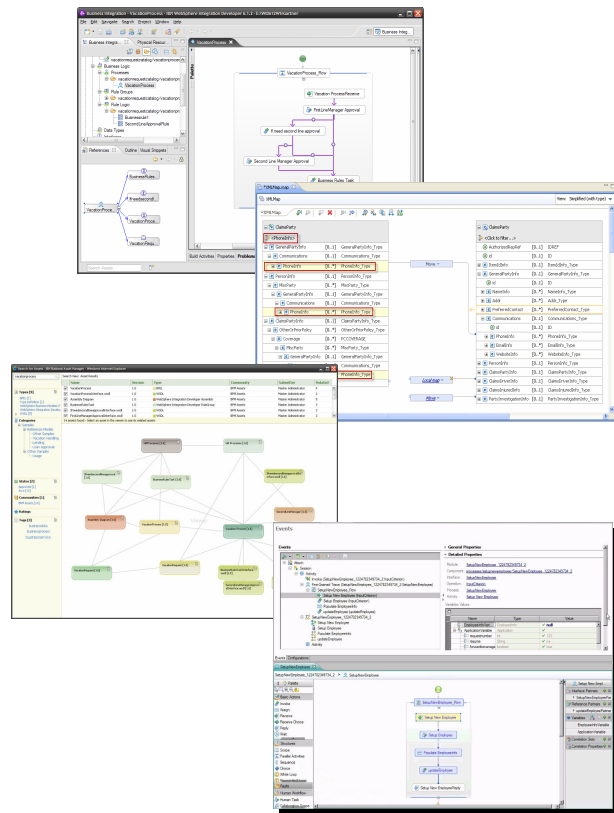
WB284 / VB2841.0

Notes:

Business analysts should perform all of the duties that they normally would in a BPM project, including modeling the process, analyzing to identify an appropriate future state process, and collaborating with others to ensure that all requirements are met by the new process. In addition, the business analyst must think about some of the behaviors that they hope to experience in the running process, including what business rules may exist and how they should be able to be modified, what human task interfaces should look like, and when human tasks should be escalated. They must also take the lead role in testing the resulting process, which is done inside of a pre-built space in Business Space. This testing is something that a business analyst would often do for a human-centric business process regardless of the method in which it was implemented.

IT developers use WebSphere Integration Developer

- Create business services
 - Provide business services to the business analyst
 - Implement complex business logic and data mapping
 - Implement mediations
 - Define new KPIs and monitor models
- Publish and Deploy
 - Administering the Testing environment and Configuration
 - Publish business services to repository using WebSphere Services Registry and Repository
 - Create the production deployment package
- Problem determination
 - Assist the WebSphere Business Monitor user in debugging



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Figure A-7. IT developers use WebSphere Integration Developer

WB284 / VB2841.0

Notes:

IT developers act as “service providers” within an interactive process design environment. They must provide configuration files that contain server connection and human task user mapping information to the Modeler users, and provide support for problem determination and production deployment activities. IT developers must also create the business-consumable Web services that may optionally be used in processes.

Configure development environment: servers



- Sandbox server
 - Minimum WebSphere Process Server
 - WebSphere Integration Developer testing environment will work in a single-machine development environment
 - Form monitoring, WebSphere Business Monitor
 - Must be in “Development Mode”
- WebSphere Integration Developer
 - Develop services
- Service repository
 - WebSphere Services Registry and Repository
 - Services must be imported and described

WebSphere Process Server
Sandbox Server



Sandbox Servers should be remote and shared by several Business analysts

WebSphere Integration Developer



WebSphere Services Registry and Repository Server



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Figure A-8. Configure development environment: servers

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Notes:

The sandbox test environment that Modeler can deploy to is a WebSphere Process Server v6.2. This could be a standalone WebSphere Process Server v6.2 server in a test environment, or a test server within a WebSphere Integration Developer v6.2 UTE. In either case, the server may either be on the same machine as the Modeler installation that performs the deployment, or it may be on another machine that is accessible via the network. If using the WebSphere Integration Developer UTE server, a maximum of five Modeler Advanced clients are allowed to connect to a single WebSphere Integration Developer UTE. If business measures and KPIs are to be included in any of the processes deployed from Modeler, the WebSphere Process Server server or WebSphere Integration Developer UTE must have WebSphere Business Monitor v6.2 installed in the same server profile, either in a standalone or UTE configuration.

Configure development environment: tools



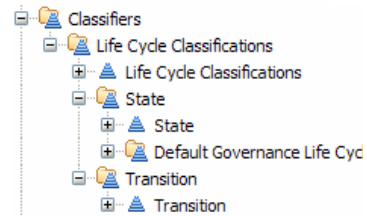
WebSphere Business Modeler



- Import service classifications from WebSphere Services Registry and Repository to WebSphere Business Modeler
- Create Server Configuration file
 - Points to the servers
 - Binds human task roles to sever registers
- Uses the Server Configuration file to create the Test Server

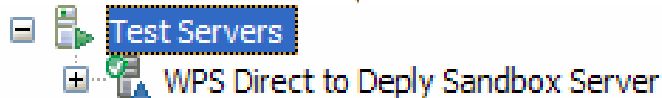
WebSphere Service Registry and Repository classification system

WebSphere Services Registry and Repository Server



```

<?xml version="1.0" encoding="UTF-8" ?>
- <rest:serverConfiguration xmlns:rest="http://rest.dtd.btools.ibm.com" name="WPS Direct to
  Deploy Sandbox Server" test="true" secured="true" memberMapping="JKInsurance.rmf">
  <description>WPS Direct to Deploy Sandbox Server</description>
  <serverComponent name="WebSphere Process Server"
    configuration="https://localhost:9444/rest/serverComponent/componentConfiguration" />
  <serverComponent name="WebSphere Monitor Server"
    configuration="https://localhost:9444/monitorServerComponent/componentConfiguration" />
  <serverComponent name="WebSphere Business Space"
    configuration="https://localhost:9444/BusinessSpace/services/request/deployConfig" />
</rest:serverConfiguration>
  
```



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Figure A-9. Configure development environment: tools

WB284 / VB2841.0

Notes:

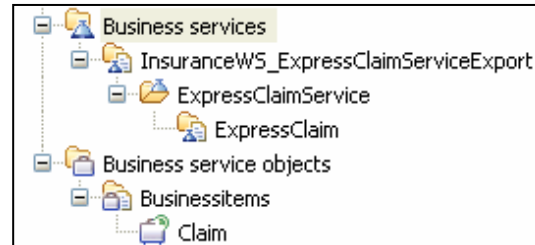
To utilize interactive process design, WebSphere Business Modeler Advanced (which includes IBM Lotus Forms Designer and IBM Lotus Forms Viewer for development use) is required, as is some instance of WebSphere Process Server. This WebSphere Process Server could be a stand-alone server, or a unit test environment in WebSphere Integration Developer. Optional software to extend interactive process design are WebSphere Business Monitor (either stand-alone server or unit test environment) and WebSphere Service Registry and Repository.



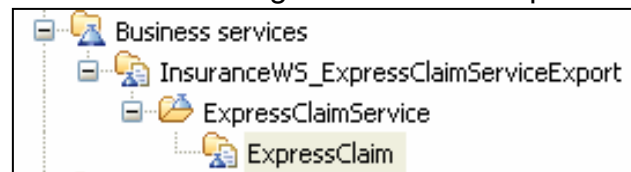
Import and configure services

- Use Business Services Search Wizard to import services and business objects

WebSphere Services
Registry and Repository
Server



- Define services classifiers and classifier values for retrieving the services endpoints at run time



Classifiers and classifier values

This section shows the value and color associated with each classifier.

Classifier	Classifier value
/JKInsurance/Classifiers/Life Cycle Classifica...	Deployed

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Figure A-10. Import and configure services

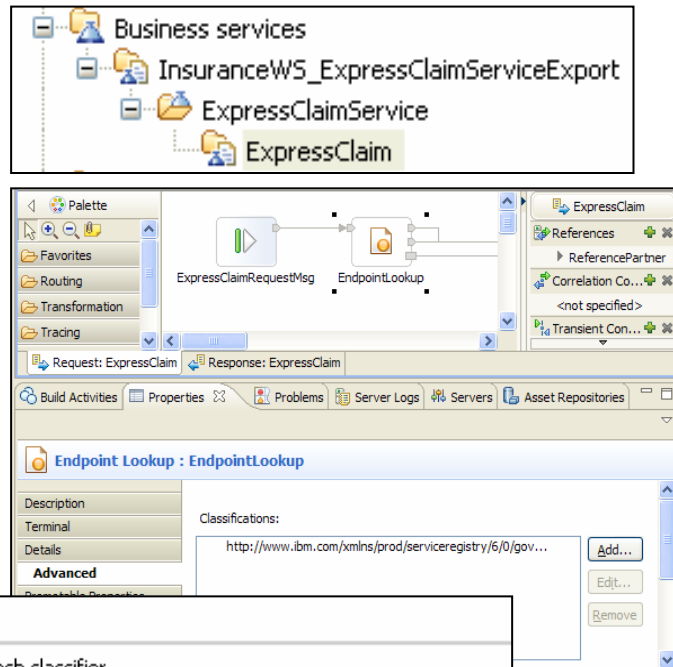
WB284 / VB2841.0

Notes:



Why specify service classifiers?

- The service invocation code generated by Modeler is Mediation Flow
- Mediation Flow uses WebSphere Services Registry and Repository Server Endpoint Lookup primitive
- The WebSphere Services Registry and Repository Server Endpoint Lookup primitive uses this Classifier



Classifiers and classifier values

This section shows the value and color associated with each classifier.

Classifier	Classifier value
/JKInsurance/Classifiers/Life Cycle Classifica...	Deployed

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Figure A-11. Why specify service classifiers?

WB284 / VB2841.0

Notes:



Model process for execution

- Process modeling
 - Process
 - Cycles (back links) are supported
 - Human Task for starting process is generated
 - Business rules
 - Human tasks
 - Define roles for human tasks
 - Data maps
 - Add tasks
 - Faults are supported
- Monitor Model
- Lotus forms
 - Create forms using Modeler
 - Edit forms using Forms Designer

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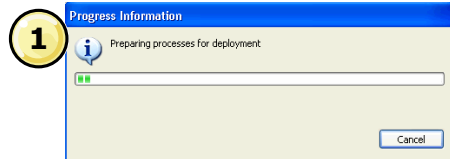
Figure A-12. Model process for execution

WB284 / VB2841.0

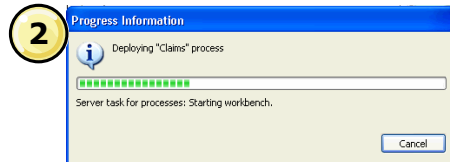
Notes:

Lotus Forms is the user interface technology for both process-initiating and in-process human tasks. Lotus Forms Designer and Lotus Forms Viewer are included with each Modeler Advanced license for development use only, so there is no further cost to the customer for IPD. In a production environment, Lotus Forms Client or Server product licenses are required depending on how the forms are deployed into production.

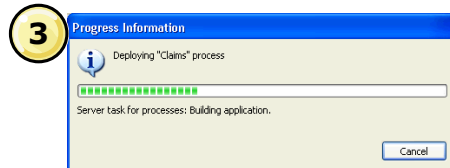
Deploying to test server



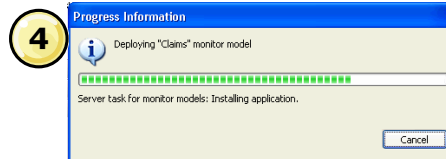
Transform Monitor and Process models to a WebSphere Integration Developer Project Interchange file format



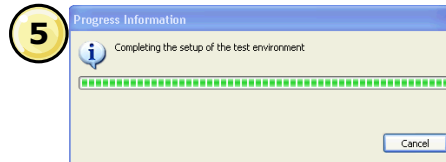
Start headless WebSphere Integration Developer and import the Monitor and Process PI files



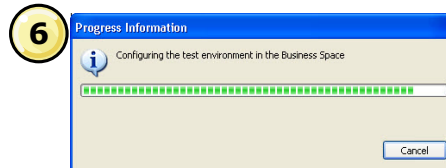
Build Monitor and Process EARs



Deploy the EARs to the Sandbox WebSphere Process Server



Establish communication between Modeler and Test widget



Create and configure the Interactive Process Design Business Space

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Figure A-13. Deploying to test server

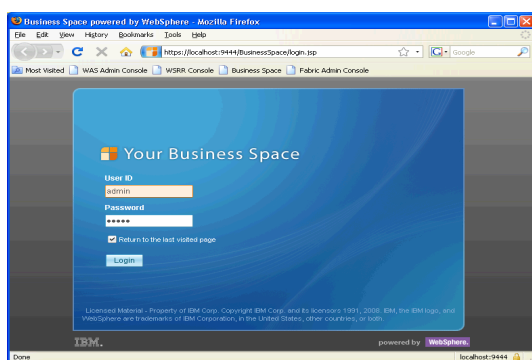
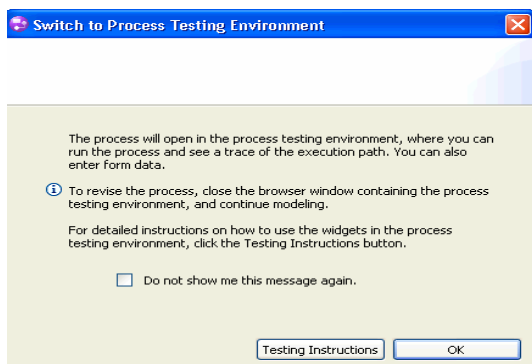
WB284 / VB2841.0

Notes:

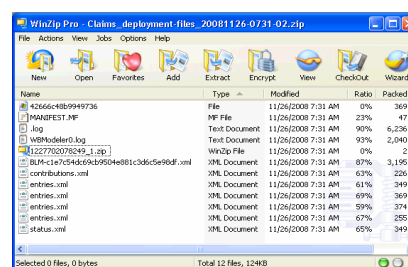
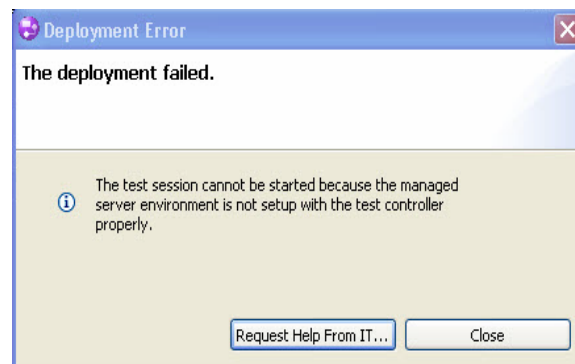


Request help from IT

Success



Failure



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Figure A-14. Request help from IT

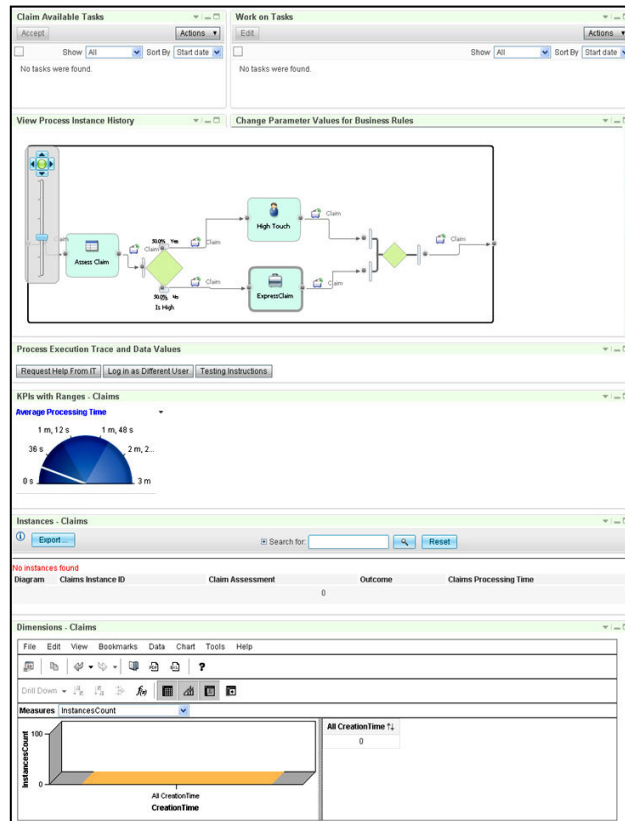
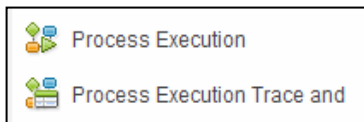
WB284 / VB2841.0

Notes:

Test deployed processes using Test Space



- Test Space is a customized Business Space tailored for the process being tested
- What capabilities are provided in the Test Space?
 - Start execution of the process using originating task in the “launch-pad” – Human Task Widgets
 - View assigned tasks, claim and complete them – Human Task Widgets
 - Dynamically alter the process execution – Business Rules Widget
 - View monitor dashboard for the executing process – Monitor Widgets
 - Test/debug the process



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Figure A-15. Test deployed processes using Test Space

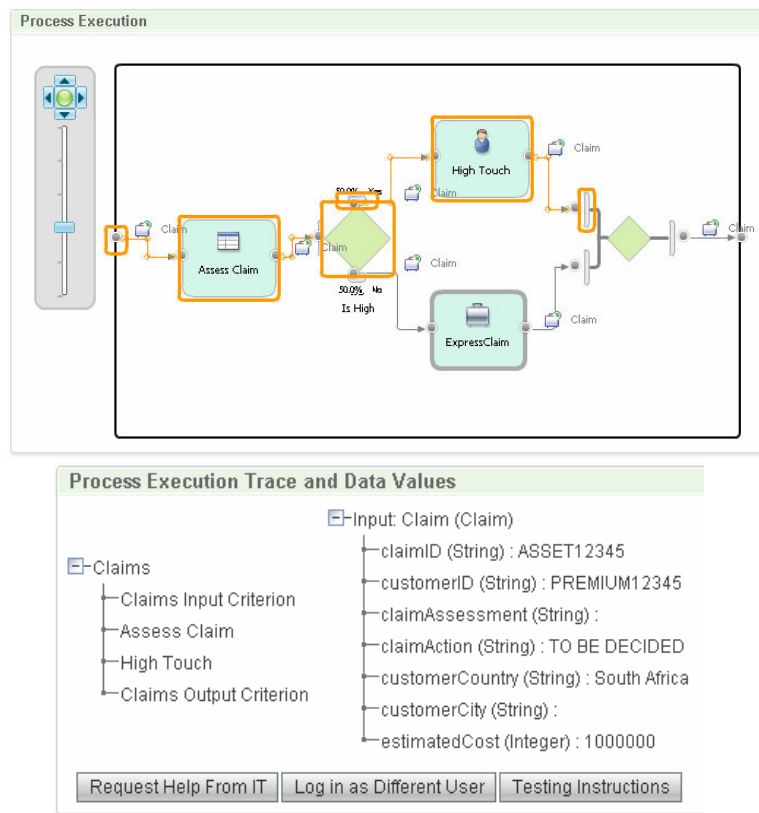
WB284 / VB2841.0

Notes:



Features of the test widget

- See visual trace of the executing process
 - Executed branches visualized on process model diagram in Test Space
 - Detail step trace for each executed task
- Inspect the actual inputs and outputs of each task
- Logon with new user ID (to claim a task)
- Request help from IT



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Figure A-16. Features of the test widget

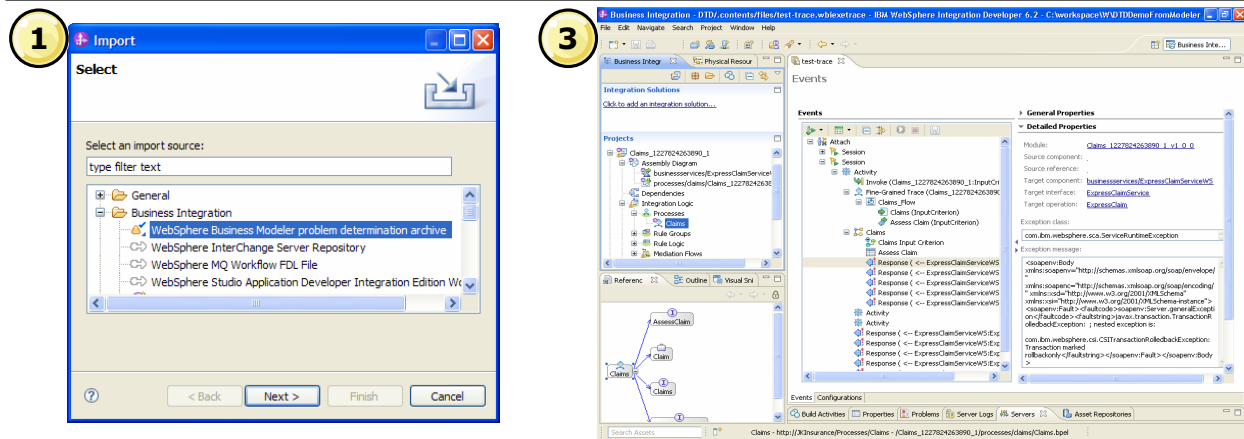
WB284 / VB2841.0

Notes:



Solves deployment and runtime problems

- Uses the zipped artifacts exported from the Test Space to determine the problems
- Problem zip file to be imported to WebSphere Integration Developer
- Includes traces, PI File and Modeler process diagram



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Figure A-17. Solves deployment and runtime problems

WB284 / VB2841.0

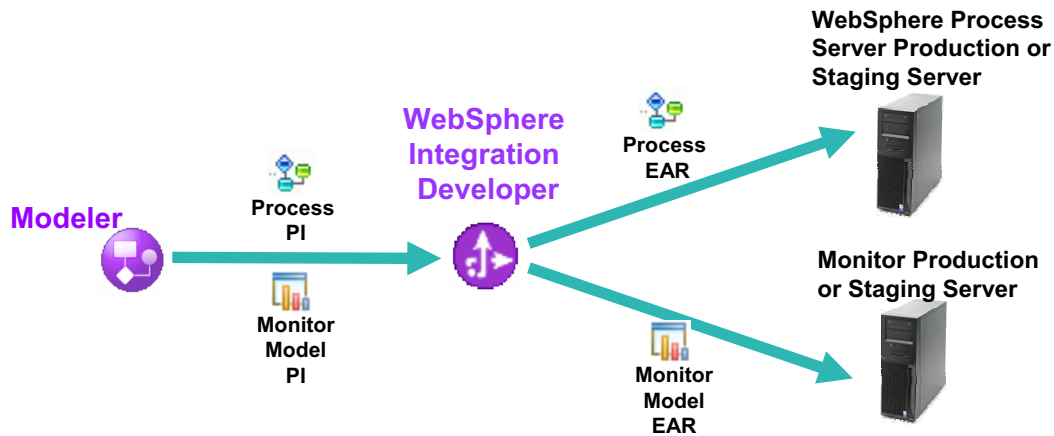
Notes:

While business analysts are expected to be able to work through business logic issues in interactive process design, it is unrealistic to expect that they will have the skills necessary to troubleshoot technical issues that may arise. Thus, whenever an error is detected by the server, a “Get Help from IT” button is surfaced (this capability is also available directly from inside Modeler). When pressed, “Get Help from IT” will gather server logs, the WebSphere Integration Developer artifacts that would be generated from the process being tested, and a full trace of the test instance that generated the error. All of this information is placed into a single zip file which the Modeler user can send to their supporting IT developer for debugging. The zip file can be imported directly into WebSphere Integration Developer to assist in problem determination.



Deploy to Production

- Exports Process and Monitor models as PI files
- Imports to WebSphere Integration Developer
- Makes IT changes
 - Changes deployment descriptors
- Generates EARs
- Follows the standard Deploy to Production process
 - **Unit Test > System Test > Deploy to Production**



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Figure A-18. Deploy to Production

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Notes:

It is not recommended that a WebSphere Business Modeler user deploy process directly to a production environment. The v6.2 release provides the capabilities to design and test simple human workflows, but does not provide capabilities to deploy processes with appropriate security and QOS attributes that would be required for real production use. It is recommended that users leverage the capabilities of the WebSphere Integration Developer tool and the expertise of IT developers and Administrators to deploy the process with appropriate governance.

Unit summary

Having completed this unit, you should be able to:

- Explain the key concepts of interactive process design

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Figure A-19. Unit summary

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Notes:

Appendix B. List of abbreviations and acronyms

A

B

BPC Business Process Choreographer
BPEL Business Process Execution Language
BPM business process management
BPMN Business Process Modeling Notation

C

D

E

EAR enterprise archive
ECM Enterprise Content Management
ESB enterprise service bus

F

FDL FlowMark Definition Language

G

H

HTML Hypertext Markup Language
HTTP Hypertext Transfer Protocol

I

IDE integrated development environment
IDL Interface Definition Language
ISV independent software vendor
IT information technology

J

J2C J2EE Connector Architecture
J2C Java 2 Connector
J2EE Java 2 Enterprise Edition
J2SE Java 2 Standard Edition
JAR Java archive
JVM Java virtual machine

K

KPI key performance indicator

L

LAN local area network

LDAP Lightweight Directory Access Protocol

M

N

O

P

Q

R

S

SCA Service Component Architecture

SVG Scalable Vector Graphics

T

U

UML Universal Modelling Language

V

W

WAR Web archive

WSBPDL Web Services Business Process Execution Language

WSDL Web Services Description Language

X

XDE Extended Development Environment

XML Extensible Markup Language

XPDL XML Process Definition Language

XSD XML Schema Definition

XSL Extensible Stylesheet Language

XSLT Extensible Stylesheet Language Transformation

Y

Z

